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Contents—995; Market Review—1000

IRON TRADE REVIEW

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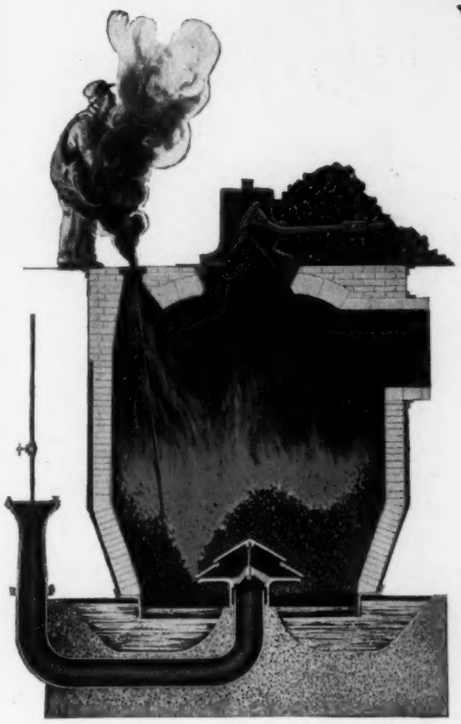
CLEVELAND, O., OCTOBER 14, 1926

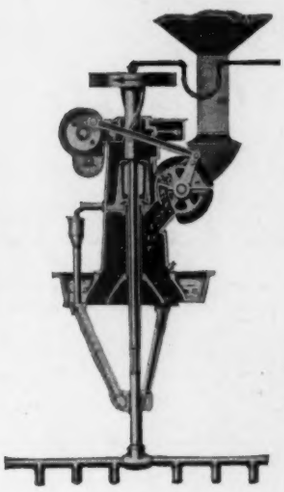
Entered as second-class matter at the post-office in Cleveland, Ohio, under the act of March 3, 1879

Six Dollars a Year
Single Copy 25 Cents

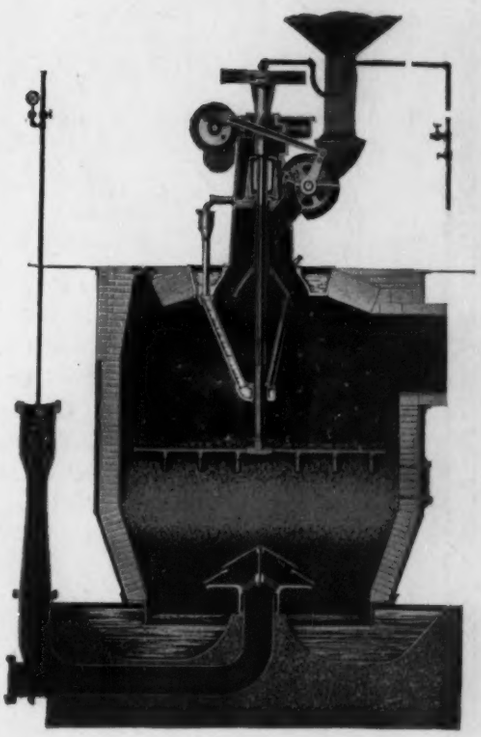
Over eleven hundred installations prove the value of this machine



Producer practice, like that pictured on the left, represents a fuel loss of at least 15 per cent. One producer operating like this will waste $15.00 worth of coal a day. This saving on one producer represents an interest charge of 6 per cent on a $75,000.00 investment, or twenty times the cost of a Chapman Agitator.



The troublesome, out-of-date and wasteful hand-poked producer, shown above, can be changed within 48 hours to the modern automatic, labor-saving and highly efficient gas-making machine, shown at the right, by adding a Chapman Floating Agitator. The cost is so low that the savings pay for the installation in less than a year.

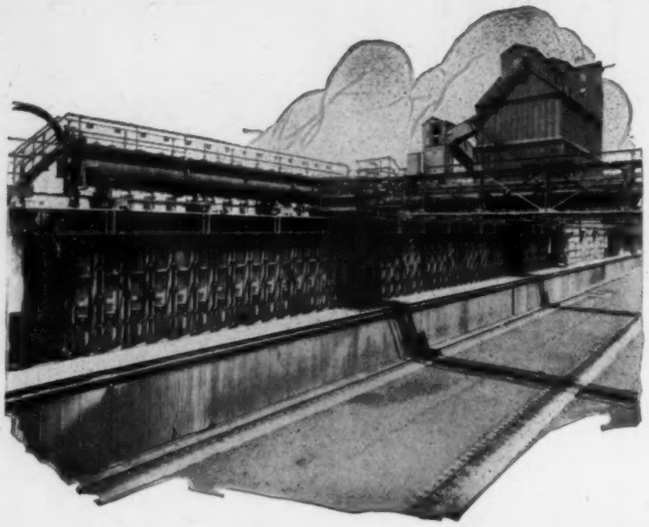


The Chapman Engineering Co.

Allied with the C. & G. Cooper Co.

Mt. Vernon, Ohio

There is a Chapman Producer to fit every producer gas problem.



Becker Type Ovens

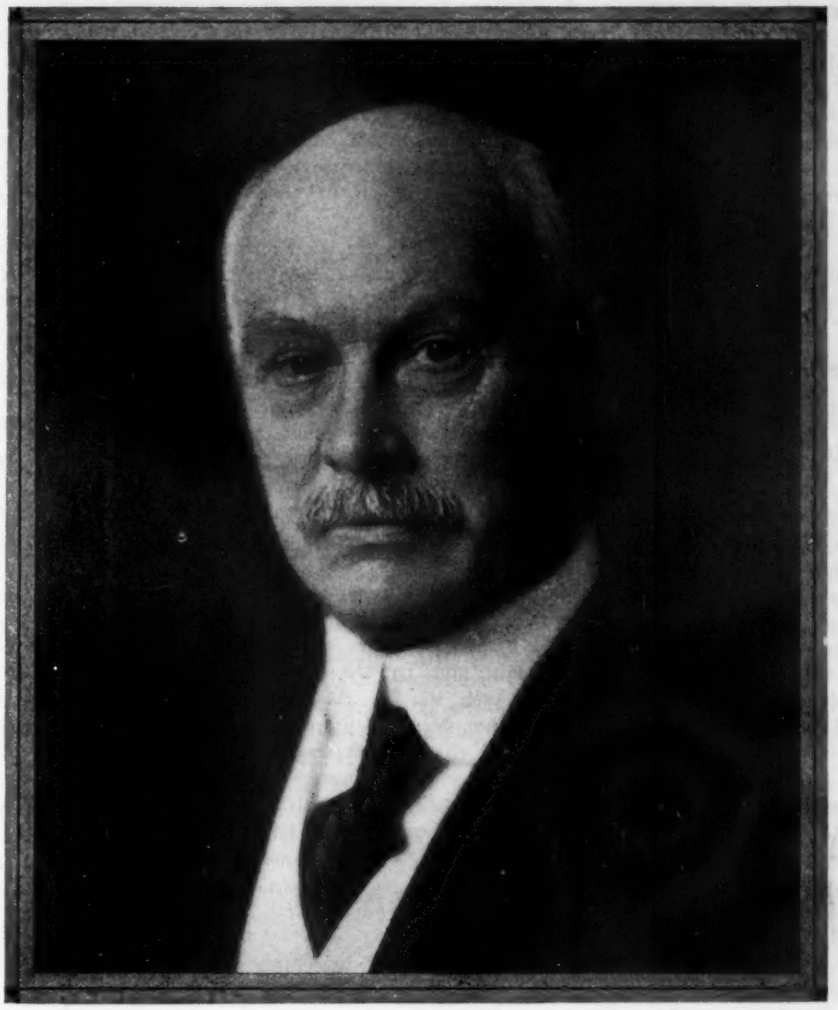
DURING the first seven months of 1926 seven companies awarded The Koppers Company contracts to build 675 Becker Type Combination Ovens, with an aggregate annual capacity of over 6,300,000 tons of coal.

Central Steel Co., Massillon, Ohio	49 ovens
Republic Iron & Steel Co., Youngstown, Ohio	43 ovens
Bethlehem Steel Co., Johnstown, Pa.	77 ovens
Bethlehem Steel Co., Lackawanna, N. Y.	57 ovens
West Boston Gas Co., Framingham, Mass.	15 ovens
Tennessee Coal, Iron & Railroad Co., Birmingham, Ala.	63 ovens
Carnegie Steel Co., Clairton, Pa.	348 ovens
Diamond Alkali Co., Painesville, Ohio	23 ovens

The Koppers Company

Pittsburgh, Penna.

Chicago, Ill. **New York City**



Judge Gary, at Eighty, Receives Flood of Felicitations

By E. C. Kreutzberg

ELBERT H. GARY, who celebrated his eightieth birthday Oct. 8, must have felt at the conclusion of the day that it was worth while waiting 80 years for the event. His office literally was overwhelmed with the attentions of those who desired to present their respects. There was no attempt to count the letters and telegrams, which came in by the bushels. It looked as though everybody who was alive and conscious had sent a letter of congratulation.

Judge Gary was asked for the names of the prominent people who had remembered him. Some names are more prominent than others with the public, he said, but people whose names are generally unknown are in many instances just as great and able, in his view, as some of the men whose names are household words, so he did not care to name anyone.

The day prior to his birthday, newspaper men obtained permission to see Judge Gary at his office at 2.15 p. m. Friday. When they filed in to greet the judge their ranks included many of the most famous members of the profession. The newspapermen sat in Judge Gary's room, while in the directors' room, adjoining that occupied by the judge, were seated practically all of the officials of the Steel corporation. Great bouquets of flowers adorned the two chambers.

By virtue of his office as head of the corporation, and his presidency of the American Iron

and Steel institute, and also by reason of his great personal prestige, Judge Gary probably has as many opportunities to break into print as any man in the United States. His views on all developments of the day are considered as news. No day goes by without the press being well represented at Judge Garys' office. He always is ready to answer any legitimate question, and usually does so through his secretary. At times when something unusual occurs, he admits the newspapermen in a body. On these occasions he replies for publication only to questions involving business conditions or subjects having a bearing on business.

But on the occasion of his birthday, the judge replied to questions about his personal life. He said he had arisen at 6 o'clock that morning, shaved himself, returned to bed and read three newspapers, as usual. Then he breakfasted on half a broiled chicken with rice, drenched with chicken gravy, followed by a baked apple. After that he had dressed, and he arrived at his office to keep an appointment at 11 o'clock. The judge said that breakfast was his heavy meal. At lunch he had three pieces of toast and two cups of tea. In the evening, he said, provided that he had anything at all, it would be a glass of orange juice or some grapefruit.

There had been rumors that he expected to retire.

"So far as that is concerned," he said, "the question has not been suggested by any of my own people, to the best of my knowledge, at any time. I would not blame them, after the full publication in regard to my age, if they should like to displace me with a younger and a better man, but they have never said anything on the subject."

Here Judge Gary produced a bound volume containing a resolution adopted by the directors of the Steel corporation, and he let the newspapermen see it. On the table reposed another bound copy of a resolution which had been presented to Judge Gary by a delegation of steel company executives on behalf of the American Iron and Steel institute. These expressions are reproduced in part herewith.

The judge was particularly impressed with a resolution which had been presented to him by leaders of the iron and steel industry of Germany. He was gratified by its cordial tone and its expression of the desire for international co-operation. The resolution stated:

"The iron industry of the United States of North America can thank primarily your forceful co-operation and your purposeful leadership for its development in recent years to a position of such powerful magnitude. You have succeeded in welding together into a mighty structure the United States Steel Corp., the conduct of which has been in your able hands, and to lead it to marvelous accomplishment.

"You have also devoted your great powers of work to the common good. Under your long continued leadership the American Iron and Steel institute has greatly benefited the iron and steel business in general, scientifically, technically and practically, and marked out progress for it by new thoughts.

"Your tireless efforts to improve the iron industry reach far beyond the borders of your great country. On many occasions you have pointed out the advisability and the significance of international co-operation, a goal that the German iron industry considers desirable and significant for the co-operation of peoples."

"The finest thing of all today," said Judge Gary in commenting on his eightieth anniversary, "is to know there is so much kindness in the world. So many men who I thought disliked me have written or wired, that I cannot help but feel that deep down within them is a feeling of devotion of which I was not aware."

A group of four colored men and a colored woman came from Fiske university down in Tennessee to offer their sentiments to Judge Gary in the form of song. "I Want to Walk in Jerusalem Just Like John," "Swanee River," "Swing Low, Sweet Chariot," "Gideon," "Old Black Joe," and "The End of A Perfect Day," were the songs they sang in wonderful harmony to Judge Gary, while the newspapermen and the Steel corporation officials sat listening.

Discussing the five-day week of Henry Ford, Judge Gary said that he was opposed to it. He expressed the belief that if any country is to prosper it must regard the commandment, "Six days shalt thou labor." American industry, with its higher standards of living, cannot compete successfully on a five-day basis with European labor working six days a week, Judge Gary believes. For the steel industry, he-

(*Concluded on Page* 988)

Judge Gary's Leadership of Institute Lauded

JUDGE GARY'S leadership of the American Iron and Steel institute was praised in a letter the institute's director sent to him on his eightieth birthday. The letter is as follows:

"We, the directors of the American Iron and Steel institute, extend to you on this, your eightieth birthday anniversary, our sincere, affectionate congratulations and good wishes.

"Since the creation of the institute, which was inspired by your efforts to stabilize the iron and steel industry at a time of great financial stress, you have been its wise, far seeing, able leader. Your vision, your wise counsel and your fearless stand for fair treatment and consideration of the rights of others, have been of the greatest value to the industry, to our country during the great War and to the American people.

"May you be spared for many years, in health and vigor, to continue to guide us.

Sincerely, C. M. Schwab, Willis L. King, John A. Topping, E. A. S. Clarke, William J. Filbert, Samuel Mather, J. F. Welborn, J. A. Campbell, James A. Farrell, Jos. G. Butler, Jr., W. H. Donner, L. E. Block, James A. Burden, Thomas Cantley, A. C. Dinkey, E. G. Grace, Thomas K. Glenn, Severn P. Ker, Horace S. Wilkinson, Isaac M. Scott, H. M. Hanna, R. H. McMaster, S. E. Hackett."

Corporation's Directors Express Appreciation

EXPRESSING the hope that Judge Gary "may continue among us for many years," the board of directors of the United States Steel Corp. adopted "an appreciation" of the services of their chairman, "who has held this important post since the date of the organization of the corporation, Feb. 25, 1901." The statement continues:

"His great ability, his loyalty to the best interests of the corporation, his respect for the opinions of others, his kindness and tact, have won for him the respect, admiration and affection of his associates and subordinates; his patriotism broadmindedness, integrity and desire for fair dealing have created for him an outstanding position in the hearts and minds of every right-thinking, self-respecting, loyal American, as well as his countless friends and admirers throughout the world.

"To Elbert H. Gary, distinguished lawyer, wise business man, incomparable leader, on this occasion, we offer our sincere congratulations and express the earnest hope that he may continue among us for many years to come.

Industrial Furnaces

A Treatise on the Design, Construction and Function of Modern Melting, Heating and Treating Units

By Charles Longenecker

Chapter II (Continued)—Melting Furnaces

LITTLE latitude in the modification of the fire-box, or the hearth, of the stationary puddling furnace is available, but there is considerable opportunity to vary the construction of the neck, at the outlet from the hearth to the stack. The success of a furnace of this type largely is dependent on the area of the outlet opening to the stack and the slope of the roof at this point. What this area and slope should be cannot be determined except by trial. It varies for different drafts, size of heats and method of operation. In some designs a reheating chamber is provided, at the base of the stack, where the hot gases, from the furnace, can flow over the cold pig. This procedure returns, a small portion of the heat in waste gases, to the charge, and a slight reduction in the time of the melting process follows. Due to the high temperature, which must be carried, the fire-box must be comparatively large in proportion to the melting chamber proper. The coal consumption per square foot of grate area, will range from 40 to 70 pounds an hour. By the use of forced draft, a flexibility in operation is obtained which is especially needful on a puddling furnace.

Certain limitations in the puddling process exert an influence on the thermal conditions. Thus a prime requisite in firing is the ability to control the atmosphere in the melting chamber or hearth. An oxidizing

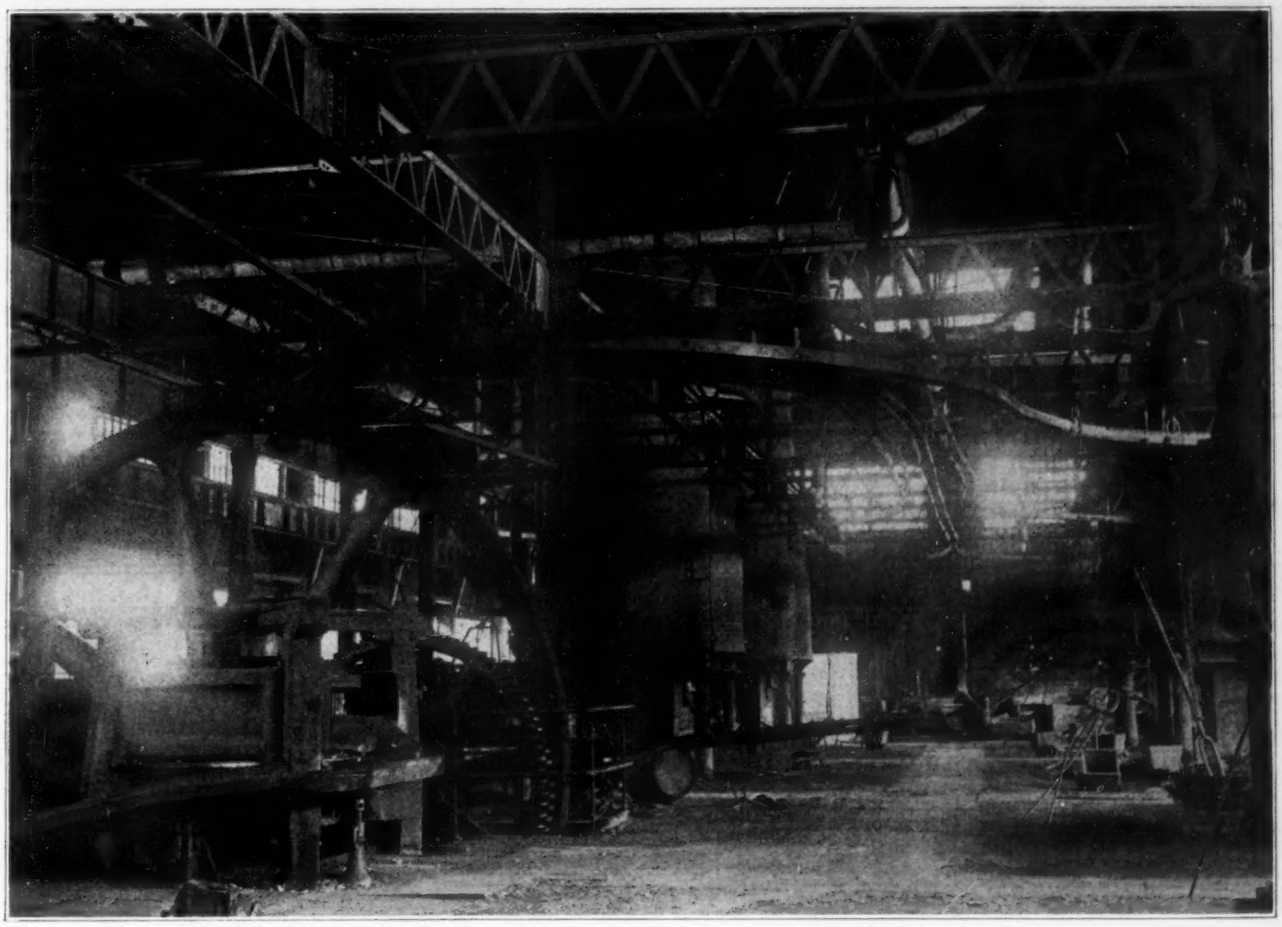
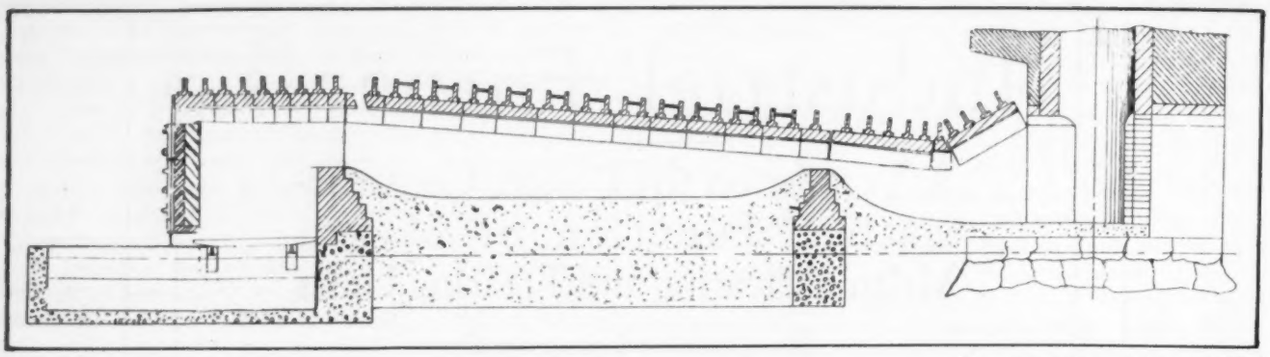


FIG. 16—STACKS IN THE CENTER AND AT THE RIGHT ARE VERTICAL WASTE HEAT BOILERS SUPERIMPOSED ON PUDDLING FURNACES. THE MONORAIL SYSTEM IS USED FOR DELIVERING THE PUDDLED BALLS TO THE SQUEEZER



From the A B C of Iron and Steel

FIG. 17—SECTIONAL VIEW OF AN AIR FURNACE FOR MAKING MALLEABLE IRON

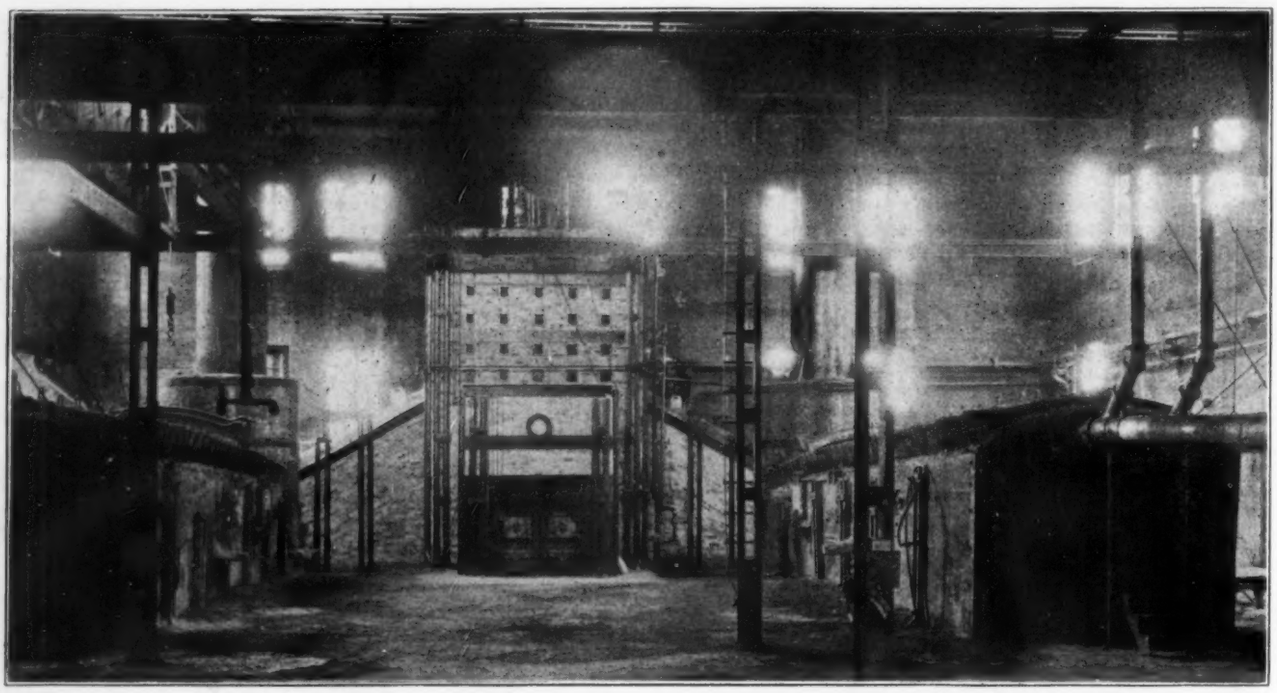
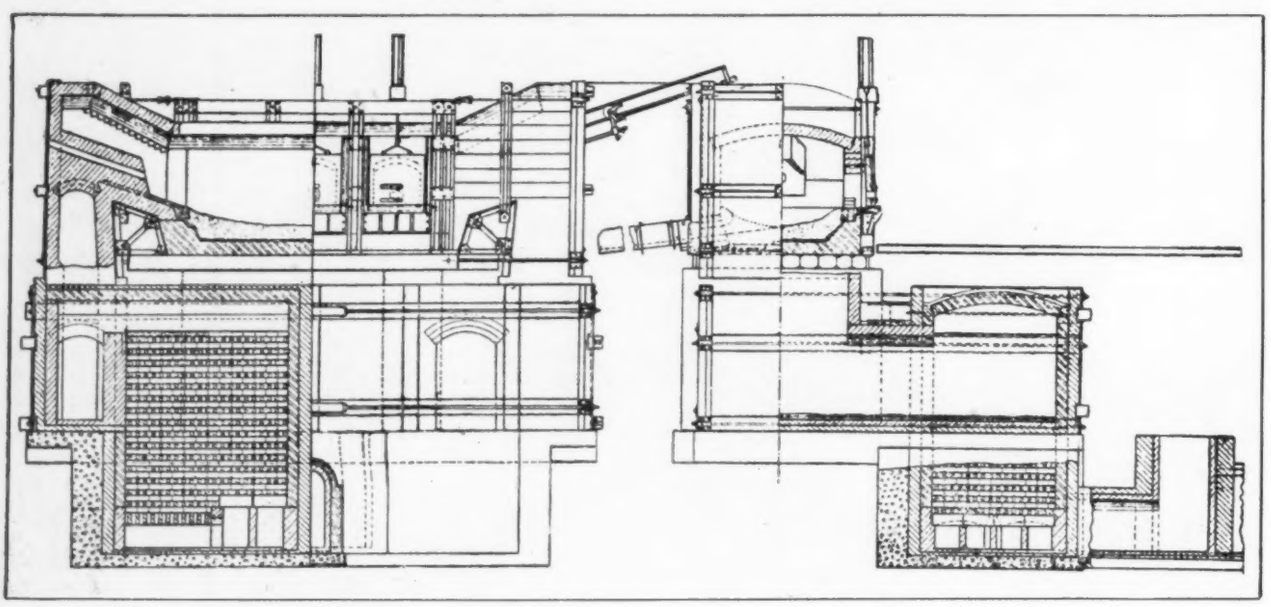


FIG. 18—AIR MELTING FURNACES OF 25 TONS CAPACITY EACH. THE WASTE HEAT BOILER IN THE BACKGROUND CAN BE FIRED WITH WASTE HEAT GASES OF POWDERED COAL



From the A B C of Iron and Steel

FIG. 19—SECTIONAL VIEWS OF AN OPEN HEARTH FURNACE FOR MELTING MALLEABLE IRON

flame may be used when melting, but later in the process, a reducing flame is imperative. A function of the bath is to oxidize the carbon, manganese and silicon with some help from the flame, but dependence is not totally placed on an oxidizing flame. The furnace atmosphere can be controlled easily in hand-firing and when burning powdered coal.

The quantity of metal per heat is limited to an amount no greater than the puddlers are able to work. This is about 500 pounds in a single, and 1200 pounds in a double furnace. The time of the heat will vary from one hour and forty five minutes to two hours and since the time of the reactions in the metal are practically constant, this time cannot be reduced to any degree.

The prevalent method of firing the furnaces is by hand and, while uneconomical in fuel, this method possesses many advantages. The fuel consumption with hand-fired practice, varies from 2200 to 2800 pounds per ton of metal produced while with powdered coal, 1600 to 1800 pounds per ton is an average. Powdered coal has been burned in puddling furnaces, with varying success, for many years both with cold and preheated air. A distinct saving in coal is obtained but the effect of the sulphur and the carbon in the coal has, in some cases, had a deleterious effect on the metal.

Roof Design Is Different

Two types of furnaces are used for melting malleable iron The more familiar is that known as the air furnace as shown in Fig. 17 while the open hearth is employed to a lesser extent. The air furnace differs from other types of reverberatory furnaces only in the construction of the roof. With this exception it is a typical reverberatory furnace and follows the laws of this class of furnace in its operation. The "bung" roof facilitates charging and, hence, economizes labor but it contributes to lower heat efficiency and has a comparatively higher maintenance cost. The life of the bungs is dependent on individual furnace operation with probably 12 heats as the average. As in all reverberatory furnaces, the form of the roof and the area of outlet to the stack determine, to a large extent, the success of the melting process. One advantage possessed by the removable roof is the ability to vary the position of the "bungs" and in this manner increase or decrease the area at any particular vertical cross-section of the furnace.

The principal development of recent years in the melting of malleable iron has been the substitution of powdered coal on many furnaces for hand-firing. Oil is burned in several plants but its use is not extensive. A few companies have installed waste-heat boilers on the furnaces.

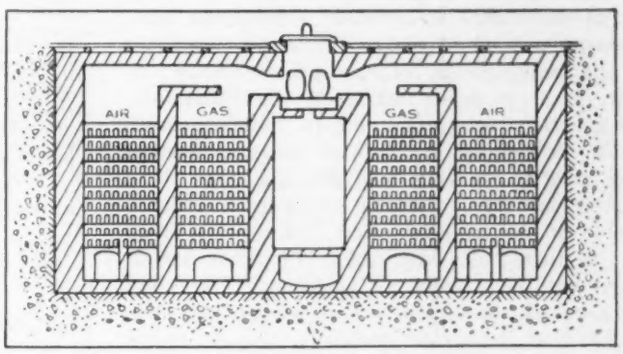
The efficiency of this type furnace when hand-fired will average from 7 to 10 per cent with the lower figure as the more common practice. The fuel ratio will vary from one of coal to two of metal to one of coal to three of metal, with the latter figure the exception.

The heaviest losses from air furnaces are the heat loss in the waste gases, radiation and incomplete combustion. The loss of heat in the waste gases will approximate 60 per cent; by radiation about 20 per cent. Due to the nonoxidizing flame, the waste gases will contain an appreciable percentage of carbon monoxide. The loss from this source may run as high as 15 per cent. A 4 per cent carbon monoxide content is not unusual.

To reclaim a portion of the heat in the products of combustion waste-heat boilers or some form of recuperator may be employed. Due to the intermittent operation of most furnaces neither of these methods of heat recovery has proved particularly attractive. A recuperator may be devised which will combine low first cost and an efficiency high enough to make its installation appealing. Many metal recuperators now are on the market; some have attractive characteristics. Radiation losses are largely from the roof. Effecting a saving in this loss is remote unless a radical change is made in the furnace construction.

The introduction of powdered coal as a fuel has necessitated some modifications in furnace structure as shown in Fig. 18, and, has been accompanied by appreciable savings. Most uniform conditions are maintained in the furnace while the temperature is easily controlled. A fuel to metal ratio of 1:3 is representative while 1:3½ is not unusual with a coal high in thermal units. The time of heats has been materially reduced to the usual practice of 18 minutes to the ton on the first heat and 15 minutes on the second. In several plants this time has been exceeded. This rapid melting also is accompanied by hotter metal, than with hand-fired practice, but care must be exercised when working a metal hot that it is not over oxidized. Other commendable features in burning powdered coal are a reduction in the cost of the metal forming the charge, and a saving in refractories and in labor. While it is possible to burn a low-grade coal with greater efficiency the most satisfactory results are obtained from high-grade coals and only these should be considered. With such a coal, ignition is quick and combustion is completed close to the burner. When these high-grade coals are burned, the carbon dioxide readings will average 14.5 per cent at the throat of the furnace.

Oil is an ideal fuel from an operating viewpoint because it combines ease of handling with concentration of heat but, unfortunately, fluctuation in price has introduced an element of uncertainty which has retarded extensive use. In air furnaces, the consumption of oil will vary from 54 to 65 gallons, depending on the size of heat.



From the A B C of Iron and Steel

FIG. 20—SECTIONAL VIEW OF A REGENERATIVE GAS-FIRED CRUCIBLE FURNACE

Open-hearth malleable melting units, as shown in Fig. 19, are found in few plants. This unit functions to highest efficiency where the tonnage of output is large and operation is continuous. Oil is the predominating fuel, except in the Pittsburgh district, where natural gas can be obtained. The amount of oil burned per ton of output averages 45 gallons. The electric furnace also is used for the melting of malleable iron and is finding increasing favor in the industry generally.

The crucible furnace, while designated a melting furnace, could be termed a heating furnace. It is a melting furnace in that metals are

(*Concluded on Page* 992)

Billet Classifications Revised

New Grouping, Upshot of Hadly Paper Before Institute in May, 1925, Embraces All Uses and Considers Average Production Costs—Probable Basis for Changing Finished Extras

WHEN Charles O. Hadly, vice president of the Alan Wood Iron & Steel Co., delivered a paper before the May, 1925, meeting of the American Iron and Steel institute, he directed attention to the need for a revised classification of billets. In that paper he pointed out that in earlier days steel requirements were not very exacting, so that billets were grouped into two classifications. These were rerolling and forging billets. Mr. Hadly discussed the increasingly exact specifications of the present day and he concluded with the recommendation that the grouping of billets into the rerolling and forging classifications is not sufficient to meet existing requirements. He declared it desirable that the original classification be extended to embrace the various uses of billets, and in accordance with the costs involved in meeting each particular requirement.

Inasmuch as the entire steel trade realized the need for an improved method of classifying steel in accordance with the requirements of various consuming industries, Mr. Hadly's paper attracted wide attention. Steelmakers generally were aware that the existing classifications took no account of the cost factors involved in supplying steel of varying analyses, and that there was no existing basis for charging prices in accordance with the value of the material sold. The desire for an investigation of these costs later led to the formation of a committee, with Mr. Hadly as chairman. This committee, made up of representatives of 18 leading steel companies, has had numerous meetings over a period of about a year and has gathered voluminous and detailed cost items. It has devoted its efforts to determining the average costs involved in producing steel of various analyses which are popular with important steel consuming industries at the present time.

Herewith is published the complete and final report of this committee. Being based upon the experience of the country's representative steel manufacturers, its figures may be regarded as definitely indicative of variations in costs for varying requirements at the present time. In view of the attention which has been directed by steelmakers generally to the problem of extras that are equitable both to the producer and the consumer, it is probable that the report will serve as the basis for many future changes in existing cards of extras covering many finished steel products. The report, therefore, merits the consideration of the entire steel trade.

The body which has co-operated in the preparation of this report is known as the committee on semifinished classification and costs. Its chairman is Charles O. Hadly, vice president of the Alan Wood Iron & Steel Co., Philadelphia. The companies which are represented on the committee and which have contributed information and data are as follows:

ALAN WOOD IRON & STEEL CO.: C. O. Hadley (chairman of meeting) vice president in charge of sales; W. S. Haring, assistant general manager of sales; A. L. Meyer, metallurgical engineer; F. C. Milliken, manager billet sales; and H. C. Thomas, vice president in charge of operations.

ANDREWS STEEL CO.: J. B. Andrews, president.

BETHLEHEM STEEL CO.: E. F. Kenney, metallurgical engineer; and L. R. Steuer, sales agent.

CARNEGIE STEEL CO.: J. O. Leech, manager bureau of inspection and tests; L. C. Lustenberger, sales agent; J. R. Mills, manager of sales, Cleveland office; C. F. W. Rys, metallurgical engineer; W. P. Siebert, assistant general sales agent rail and billets; Hugh P. Tiemann, assistant metallurgical engineer.

DONNER STEEL CO.: F. R. Huston, vice president in charge operating; W. F. Vosmer, vice president in charge sales; and A. G. Greenameyer, assistant superintendent.

HARRISBURG PIPE & PIPE BENDING CO.: F. D. Andrews, general superintendent; and H. W. Bishop Jr., general sales manager.

ILLINOIS STEEL CO.: J. Brunner, manager department of metallurgy and inspection; R. G. Glass, assistant manager department of metallurgy and inspection; William I. Howland Jr., general sales department; and P. W. O'Brien, assistant general manager of sales.

INLAND STEEL CO.: L. S. Marsh, manager department inspection and metallurgy; and Powell Pardee, manager order department.

JONES & LAUGHLIN STEEL CORP.: C. S. Bradley, general manager of sales; J. J. Shuman, inspection engineer; R. J. Wysor, assistant general manager.

McKINNEY STEEL CO.: H. W. Haggerty, vice president in charge of sales; and H. T. Harrison, vice president in charge of operating.

PENN SEABOARD STEEL CO: J. W. Warren, president; Paul J. Driscoll, sales department; and James S. Kirwin, vice president in charge of operating.

PITTSBURGH CRUCIBLE STEEL CO.: R. M. Keeney, general superintendent; and W. W. Williams, general sales manager.

PITTSBURGH STEEL CO.: J. F. Hozen, general manager of sales; G. W. Jones, assistant general manager of sales; and R. S. Simmons, manager of research.

REPUBLIC IRON & STEEL CO.: L. B. Grindlay, inspection engineer; W. H. Aliver, manager of sales; and W. B. Topping, general manager of sales.

TENNESSEE COAL, IRON & RAILROAD CO.: O. U. Cook, inspecting engineer.

UNITED ALLOY STEEL CORP.: F. W. Krebs, sales department.

WHEELING STEEL CORP.: R. M. Clemens, sales semifininshed department; C. E. Korns, general superintendent, Portsmouth woks; B. P. Hazeltine, metallurgist; W. M. MacCleary, semifinished raw material; J. C. Tucker, general sales manager; F. W. Knowles, special agent.

YOUNGSTOWN SHEET & TUBE CO.: G. A. Reinhardt, metallurgical engineer; and J. B. Roberts, assistant manager of sales.

ESTIMATED AVERAGE EXTRA COSTS FOR BLOOMS, BILLETS AND SLABS

BASIC OPEN HEARTH STEEL

For Carbon Content

When max. of range specified is	.09 or less	Extra A	$ 2
When min. of range specified does not exceed .20		Base	
When min. of range specified is between	.21 and .50 incl.	Extra B	$ 1
When min. of range specified is between	.51 and .75 inc.	Extra C	$ 2
When min. of range specified is between	.76 and .95 inc.	Extra D	$ 3
When min. of range is between	.96 and 1.40 inc.	Extra E	$ 5

For Carbon Ranges

When min. of range specified is	Standard Ranges Ladle Analysis	Special Ranges Closer than standard		
Up to .20 inclusive	5 points Base			
Between .21 and .50 inclusive	10 points Base			
Between .51 and .95 inclusive	15 points Base	for each .01	Extra F	$ 1
Between .96 and 1.40 inclusive	20 points Base			

For Manganese Content

When max. of range specified is	.35 or less	Extra G	$ 3
When min. of range specified is between	.30 and .60 incl.	Base	
When min. of range specified is between	.61 and .80 incl.	Extra H	$ 2
When min. of range specified is between	.81 and 1.20 incl.	Extra I	$ 4

For Manganese Ranges

When min. of range specified is	Standard Ranges Ladle Analysis	Special Ranges Closer than Standard		
Up to .35 inclusive	15 points Base			
Up to .60 inclusive	20 points Base	for each .05	Extra J	$ 1
Between .61 and 1.20 inclusive	30 points Base			

For Silicon Content

When min. of range is not specified		Base	
When min. of range does not exceed	.15	Extra K	$ 1
When min. of range is between	.16 and .25 incl.	Extra L	$ 3
When min. of range is between	.26 and .40 incl.	Extra M	$10

For Silicon Ranges

When min. of range specified is	Standard Ranges Ladle Analysis	Special Ranges Closer than Standard		
Up to .15 inclusive	10 points Base			
Between .16 and .25 inclusive	15 points Base	for each .01	Extra N	$ 1
Between .26 and .40 inclusive	20 points Base			

For Phosphorus Limits

When max. limit specified is .040 or over with no min.		Base	
When max. limit specified is less than .04	For each .005	Extra O	$ 1
When min. limit specified is .04 and over		Extra P	$ 1

For Sulphur Limits

When max. limit specified is .050 or over with no min.		Base	
When max. limit specified is .045		Extra Q	$ 1
When max. limit specified is .040		Extra R	$ 2
When max. limit specified is .035		Extra S	$ 3
When max. limit specified is .030		Extra T	$ 8
When min. limit specified is between .050 and .070		Extra U	$ 3
When min. limit specified is .071 and over		Extra V	$ 5

For Copper Content

When max. of range specified is	.10 or over no min.	Base	
When min. of range specified does not exceed .20		Extra W	$ 3
When min. of range specified is between	.21 and .40	Extra X	$ 5

For Copper Ranges

When min. of range specified is	Standard Ranges Ladle Analysis	Special Ranges Closer than Standard		
Up to .20 inclusive	25 points Base			
Between .21 and .40 inclusive	40 points Base	for each .05	Extra Y	$ 1

Check Analysis in Accordance with Manufacturers' "Standard Methods of Sampling and Permissible Variations for Check Analysis," revised 1926.

(a) In accordance with Section 13 or 14, respectively		Base
(b) In accordance with Section 15		Extra Z $ 3

ESTIMATED AVERAGE EXTRA COSTS FOR BLOOMS, BILLETS AND SLABS
ACID OPEN HEARTH STEEL

Acid Open Hearth Quality		Extra AOH $ 7.50

For Carbon Content

When max. of range specified is	.09 or less	Extra AA $ 2
When min. of range specified does not exceed .20		Base
When min. of range specified is between	.21 and .50 incl.	Extra AB $ 1
When max. of range specified is between	.51 and .75 incl.	Extra AC $ 2
When max. of range specified is between	.76 and .95 incl.	Extra AD $ 3
When min. of range specified is between	.96 and 1.40 incl.	Extra AE $ 5

For Carbon Ranges

When min. of range specified is	Standard Ranges Ladle Analysis	Special Ranges Closer than Standard	
Up to .20 inclusive	5 points Base		
Between .21 and .50 inclusive	10 points Base		
Between .51 and .95 inclusive	15 points Base	For each .01	Extra AF $ 1
Between .96 and 1.40 inclusive	20 points Base		

For Manganese Content

When max. of range specified is	.35 or less	Extra AG $ 3
When min. of range specified is between	.30 and .60 incl.	Base
When min. of range specified is between	.61 and .80 incl.	Extra AH $ 2
When min. of range specified is between	.81 and 1.20 incl.	Extra AI $ 4

For Manganese Ranges

When min. of range specified is	Standard Ranges Ladle Analysis	Special Ranges Closer than Standard	
Up to .35 inclusive	15 points Base		
Up to .60 inclusive	20 points Base	For each .05	Extra AJ $ 1
Between .61 and 1.20 inclusive	30 points Base		

For Silicon Content

When min. of range is not specified		Base
When min. of range does not exceed	.15	Extra AK $ 1
When min. of range is between	.16 and .25 incl.	Extra AL $ 3
When min. of range is between	.26 and .40 incl.	Extra AM $10

For Silicon Ranges

When min. of range specified is	Standard Ranges Ladle Analysis	Special Ranges Closer than Standard	
Up to .15 inclusive	10 points Base		
Between .16 and .25 inclusive	15 points Base	For each .01	Extra AN $ 1
Between .26 and .40	20 points Base		

For Phosphorus Limits

When max. limit specified is .050 or over with no min.	Base
When max. limit specified is .045	Extra AO $ 2
When max. limit specified is .040	Extra AAO $ 5
When min. limit specified is .04 and over	Extra AP $ 1

For Sulphur Limits

When max. limit specified is .050 or over with no min.	Base
When max. limit specified is .045	Extra AQ $ 2
When max. limit specified is .040	Extra AR $ 5
When min. limit specified is between .050 and .070	Extra AU $ 3
When min. limit specified is .071 and over	Extra AV $ 5

For Copper Content

When max. of range specified is	.10 or over with no minimum	Base
When min. of range specified does not exceed .20		Extra AW $ 3
When min. of range specified is between	.21 and .40	Extra AX $ 5

For Copper Ranges

When min. of range specified is	Standard Ranges Ladle Analysis	Special Ranges Closer than Standard	
Up to .20 inclusive	25 points Base		
Between .21 and .40 inclusive	40 points Base	For each .05	Extra AY $ 1

Check Analysis in Accordance with Manufacturers' "Standard Methods of Sampling and Permissible Variations for Check Analysis," revised 1926.

(a) In accordance with Section 13 or 14, respectively		Base
(b) In accordance with Section 15		Extra Z $ 3

ESTIMATED AVERAGE EXTRA COSTS FOR BLOOMS, BILLETS AND SLABS
BESSEMER STEEL

For Carbon Content

When max. of range specified is	.07 or less	Extra BA $ 2
When min. of range specified does not exceed .10		Base
When min. of range specified is between	.11 and .35 incl.	Extra BB $ 1
When min. of range specified is between	.36 and .60 incl.	Extra BC $ 2
When min. of range specified is between	.61 and .75 incl.	Extra BD $ 3

For Carbon Ranges

When min. of range specified is	Standard Ranges Ladle Analysis	Special Ranges Closer than Standard	
Up to .10 inclusive	5 points Base		
Between .11 and .40 inclusive	10 points Base		
Between .41 and .60 inclusive	15 points Base	For each .01	Extra BF $ 1
Between .61 and .75 inclusive	20 points Base		

For Manganese Content

When max. of range specified is	.35 or less	Extra BG $ 3
When min. of range specified is between	.30 and .60 incl.	Base
When min. of range specified is between	.61 and .80 incl.	Extra BH $ 2
When min. of range specified is between	.81 and 1.20 incl.	Extra BI $ 4

For Manganese Ranges

When min. of range specified is	Standard Ranges Ladle Analysis	Special Ranges Closer than Standard	
Up to .35 inclusive	15 points Base		
Up to .60 inclusive	20 points Base	For each .05	Extra BJ $ 1
Between .61 and 1.20 inclusive	30 points Base		

For Silicon Content

When min. of range is not specified		Base
When min. of range does not exceed	.15	Extra BK $ 1
When min. of range is between	.16 and .25 incl.	Extra BL $ 3

For Silicon Ranges

When min. of range specified is	Standard Ranges Ladle Analysis	Special Ranges Closer than Standard	
Up to .15 inclusive	10 points Base	For each .01	Extra BN $ 1
Between .16 and .25 inclusive	15 points Base		

For Phosphorus Limits

When max. limit specified is .11 or over		Base
When max. limit specified is less than .11	For each .005	Extra BO $ 1

For Sulphur Limits

When max. limit specified is .070	Base
When max. limit specified is .060	Extra BQ $ 1
When max. limit specified is .050	Extra BR $ 2
When max. limit specified is .040	Extra BS $ 3
When min. limit specified is between .060 and .070 incl.	Extra BT $ 1
When min. limit specified is .071 and over	Extra BU $ 3

For Copper Content

When max. of range specified is	.10 or over with no minimum	Base
When min. of range specified does not exceed .20		Extra BW $ 3
When min. of range specified is between	.21 and .40	Extra BX $ 5

For Copper Ranges

When min. of range specified is	Standard Ranges Ladle Analysis	Special Ranges Closer than standard	
Up to .20 inclusive	25 points Base		
Between .21 and .40 inclusive	40 points Base	For each .05	Extra BY $ 1

Check Analysis in Accordance with Manufacturers "Standard Methods of Sampling and Permissible Variations for Check Analysis," revised 1926.

(a) In accordance with Section 13 or 14, respectively		Base
(b) In accordance with Section 15		Extra Z $ 3

ESTIMATED AVERAGE EXTRA COSTS ON ACCOUNT OF SIZE, FOR BLOOMS, BILLETS AND SLABS

Size, Inches	Average Extra Cost Above Base Dollars per Gross Ton
Squares, under 1¾ x 1¾ to 1½ x 1½ inclusive	3.00
Squares, under 4 x 4 to 1¾ x 1¾ inclusive, or rectangular sections of equivalent area not less than 3 in. thick	1.00
4 x 4 to under 10 x 10 or Equivalent Area	Base
10 x 10 to under 14 x 14	Area 2.00
14 x 14 to under 16 x 16	Do. 4.00
16 x 16 to under 20 x 20	Do. 6.00
20 x 20 and over	Do. 8.00
Weight per piece when ordered 12,000 lb. and over (This shall not apply when product of ingot is accepted)	10.00
Slabs or rectangular sections having unequal sides under 3 in. thick	2.00

Billets under 4 x 4 shall not be furnished in forging quality.
Any sizes smaller than 1½ x 1½ shall not be considered as billets.

PROPOSED QUALITY CLASSIFICATION and ESTIMATED AVERAGE EXTRA COSTS ABOVE BASE of STEEL BLOOMS, BILLETS AND SLABS

CLASS OR—Ordinary Rerolling Quality

Normal top discard.
The ends may be hot sawed or sheared and shall be free from open piping.
The surfaces shall be free from open cracks and large slivers, but are not required to be chipped.
The chemical composition to be determined by ladle analysis.
This quality is intended to be used for rerolling into general commercial grades of bars, structural plates, and shapes, etc.
Estimated average cost per gross ton..... Base

CLASS SR—Special Surface Rerolling Quality

Normal top discard.
The ends may be hot sawed or sheared and shall be free from open piping.
The surfaces shall be prepared by chipping or other methods to eliminate visible surface imperfections.
The chemical composition to be determined by ladle analysis.
This quality is intended to be used for rerolling into products such as cold finished bars, hot rolled strips, etc., which are required to have smooth and clean surfaces.
Estimated average cost above base per gross ton..... $2.50

CLASS DR—Special Top Discard Rerolling Quality

Special top discard.
The ends may be hot sawed or sheared.
The steel shall be free from piping.
The surfaces shall be free from open cracks and large slivers, but are not required to be chipped.
The chemical composition to be determined by ladle and standard check analyses.
This quality is intended to be used for rerolling into bars and other sections which are required to be free from piping.
Estimated average cost above base per gross ton..... $2.50

CLASS SDR—Special Surface and Top Discard Rerolling Quality

This quality is a combination of Classification SR and DR given above and is intended to be used for rerolling into special forging quality bars, strips intended for cold rolling and similar purposes, which are required to have smooth and clean surfaces and to be free from piping.
Estimated average cost above base per gross ton..... $5.00

CLASS F—Forging Quality

Special top discard.
The ends may be hot sawed or sheared.
The steel shall be free from piping.
The surfaces shall be prepared by chipping or other methods to eliminate visible surface imperfections.
The chemical composition to be determined by ladle and standard check analyses.
This quality is intended to be used for forgings such as car axles, automobile and general forgings, etc., which are required to have clean surfaces and to be free from piping.
Estimated average cost above base per gross ton..... $5.00

CLASS Fa— When forging quality is subject to segregation restriction in chemical composition determined by analysis from drillings taken at two points in the same section:
Estimated average additional cost for this requirement per gross ton..... $5.00

CLASS Fb— When forging quality is subject to examination of the interior by fracture tests only:
Estimated average additional cost for this requirement per gross ton..... $5.00

CLASS Fc— When forging quality is subject to deep etching, macroscopic or microscopic tests:
Estimated average additional cost for this requirement per gross ton..... $10.00

CLASS LF—Forging Quality for Locomotive Driving Axles and Other Large Forgings

Special top discard.
The ends may be hot sawed or sheared.

(*Concluded on Page* 1020)

What Kind of Malleable Cast Iron Does Customer Want?

By H. A. Schwartz

(Continued from last week)

CROSS bending tests, once demanded by the standard specifications, have been very wisely omitted in recent years in this country. They had proved superfluous, since all metal capable of passing the then existing tensile requirements passed them so earily that those tests added nothing to the user's knowledge of his material. With characteristic practicality the British still require, on white heart malleable, a bending test as a measure of the deformation the material will undergo, and not as a strength test.

Tensile tests required on malleable, so far, have included only a requirement for ultimate strength and elongation. They are certainly as good measures of this material's fitness for an intended use, as of the utility of a steel casting or forging. Whether or not the values now set for these constants, namely 50,000 pounds per square inch and 10 per cent elongation, are the most desirable remains an open question.

An increased strength requirement, accompanied by a suitably increased elongation, certainly will be accompanied by an increased resistance to fatigue and impact. It will be shown later, that where machinability is important, a balance must be struck between the value of strength and ease of cutting, and an indefinite increase in strength is, therefore, not necessarily in the user's interest.

New Demand Arises

During the last year or two there has come, from some sources, a demand for the inclusion of a figure for yield point in the tensile specification. The demand has behind it a measure of logic, since most ferrous materials are being specified from this viewpoint, or at least have been studied by engineers sufficiently, so that the user is satisfied that he can rely upon a given yield point from a known kind of material, of given tensile strength. It is obvious also that the yield point rather than the tensile strength is the limiting factor in the design of static structures at least, while the fatigue limit is the true criterion under dynamic conditions. Fortunately, the latter is almost uniformly 50 per cent of the ultimate strength in all ferrous materials so far tested. It was, therefore, inevitable that the user should demand either a guaranteed yield point, or at any rate, some definite assurance of the relation of yield point to ultimate strength.

As a mere expression of the author's opinion, it may be here stated that the yield point of malleable cast iron is certainly above 60 per cent of its ultimate strength.

Its exact location may well be a subject for argument to a much greater degree than in the case of competitive materials. Having recently made a critical study of data from seven laboratories, including two consumers, one consultant, and four producers, the author has been shown conclusively that different experimenters will vary as much as 4000 pounds per square inch or about 12½ per cent of the mean value, in the average results of long series of tests for this constant on metal of equal quality. Such a lack of agreement is disquieting.

At present, the yield point is frequently defined as the point where "the beam drops" in testing. The incongruous data already alluded to, were obtained in this way. In the author's judgment, this method has little but simplicity in its favor. The reason for the nonconcordant results are as follows:

1. The absence of any point at which stress does not increase at all with the strain renders the point indefinite, per se.
2. The specimen, being unmachined, is not of uniform cross section throughout its length, hence different zones reach the yield point at different times, and render the point even vaguer.
3. The specimen, being held by wedge grips, is not located definitely with respect to the cross heads of the machine and slips in the holding mechanism may confuse the yield point or be mistaken for it.
4. The specimen, never being perfectly straight, introduces similar errors.

Malleable cast iron is used for some purposes which never stress it anywhere near its safe limit simply because it is the most machinable commercial ferrous material possessing any useful degree of ductility. A consumer of castings of this type will not find his interests served by any increase in the specified strength requirements.

Machinability Requirements

Machinability requirements at least are implied in many agreements, and consumers consider themselves justified in rejecting material defective from this viewpoint. Unfortunately, there is not yet any satisfactory means of describing quantitatively the degree of machinability any given consumer may consider indispensable. If there were, it might be possible to evaluate the relative importance of strength and machinability, and set up a specification consistent with the best interests of consumers whose major purpose is to attain economy in fabrication rather than a given strength standard.

Under the usual metallurgical conditions, an increased resistance to cutting may arise from several causes:

1. Perfectly normal malleable of such ductility and strength as to be inherently difficult to machine.
2. So called "picture frame" iron which has a steely surface, difficult to cut, but is normal within.
3. Iron which has a very wide decarburized rim, is not hard, but tough, and hence machines slowly.
4. Iron which is pearlitic throughout or in extreme cases may approach original hard iron in micro-structure.

The second and fourth difficulties can be entirely guarded against if the customer will inspect test lugs left on the casting for that purpose and reject those which have the readily recognized fractures characteristic of these difficulties. Such castings frequently can be reclaimed perfectly by an appropriate heat treatment. The fault is almost always due to pure accident, rarely representing a metallurgical defect.

The first cause is actually not a defect, but represents merely the selection of the wrong grade of material for a given purpose. Incidentally, it may be said that trouble from this source will occur only where machining

From a paper presented during the convention of the American Foundrymen's association, at Detroit, Sept. 27-Oct. 1, 1926. The author, H. A. Schwartz, is manager of research, National Malleable & Steel Castings Co., Cleveland.

rates are already crowded to the limit.

The second defect is difficult of recognition except by the metallographer and neither it nor the first are readily detected by test lugs. Hardness tests of the usual types are utterly useless. Only the fourth condition would be recognized by such test, and it is found more easily by test lug inspection.

There is in no case any definite relation between cutting and indentation hardness sufficiently marked to allow the use of the latter as a measure of the former. Losses from the destruction of tools are almost invariably due to the second and fourth causes, the other two, at most, setting a limit to cutting speeds.

A major commercial problem is dealing equitably with the condition existing when there are delivered to the consumer a great number of satisfactory castings through which a few of inferior machinability are scattered without any means of finding them. A few hard castings will disorganize a day's production schedule by the breaking of tools. To this extent, they work an injury on the user out of all proportion to their number. On the other hand, it is distinctly unfair to the producer to return to him a carload of castings which may be all good except one or two which have given trouble.

It is under such circumstances that test lug inspection by the consumer will work wonders by enabling him to check the castings before delivery to the machines and by relieving the producer from the sole responsibility of seeing that not a single poor casting goes on with those which are acceptable.

Welded Castings

The subject of welding castings is associated closely with that of machining. It probably is admitted that defects involving a reduction of strength in critical parts never should be repaired by welding. An extension of this principle to all defects is not economically sound.

Many surface imperfections can be repaired perfectly by a welding operation with a consequent saving due to decreased foundry losses, and without risk of inferior service to the consumer. Such welds can be made identical in every respect with the surrounding metal, if necessary.

Welds made with white cast iron filler rod and subsequently annealed are undetectable unless accompanied by a visible defect of workmanship, and would be admissible for any purpose if assurance could be had of their subsurface soundness. It is a great injustice to reject all welds because improperly made welds are difficult to machine.

Consumers' Requirements Illogical

Lastly, the author would allude to practices on the part of consuming interests which seem to him highly illogical. Why do some consumers want to buy a high grade metal without being in any degree interested in the mechanical soundness of the casting as a whole? Why do other consumers insist on mechanical soundness in places and under conditions where a failure of the part is unthinkable? Why are cast parts so frequently designed by persons entirely unfamiliar with foundry problems and without that consultation with foundrymen which would eliminate many difficulties? Why should so many producers insist on early deliveries to an extent which makes it virtually impossible for the foundrymen to give adequate time and attention to their requirements?

Self interest would seem to dictate to buyers a policy of eliminating serious and important defects in the interests of satisfactory use, while ignoring, in the interest of ecomomy, technical flaws which are without effect in the intended use of the product. Similarly, the user should certainly be as much interested as the producer in making it as easy as possible to secure the best results under given conditions.

The tendency of a manufacturer to reduce his stock of material in process is most laudable as a means of economy. Naturally, he strives for early delivery from his source of supply. On a perfectly standardized article, the producer of the semifinished product can meet this demand by carrying a stock for the consumer. No overall economy results, for the same amount of capital is still invested in inventories, the producer merely acting as a banker, with or without adequate return, for the consumer. Even this course is generally not open to the jobbing foundryman who may have no assurance that any castings made up ahead will ever be required.

On work from patterns previously used by a given foundry, the greatest time consumption in the manufacture of malleable castings is in the annealing operation. The subject of the possible commercial reduction in annealing time probably has been discussed sufficiently. The present status of this matter seems to the author as follows:

Nothing has appeared in recent years which suggests to the progressive malleable foundryman any useful changes in regard to his heat treatments.

Engineering improvements in furnace design, the tunnel kiln for example, which make for greater uniformity of temperature and better control and reduce the overall time by reducing the time spent in heating and cooling. So long as castings must, for economic reasons, be handled in bulk, their own heat capacity sets commercial limits upon these rates. The actual temperature cycles of many foundrymen are already as efficient as they can be made within the present limits of furnace design and stock heat capacity. The problem of reduction of annealing time is that of finding chemical or other conditions under which the process of graphitization can be accelerated without undue detriment to quality or cost of product. The possibilities of temperature in this direction have been practically exhausted.

The question of chemical composition with respect to the usual elements, while admitting of further quantitative study, is qualitatively well understood by many, and revolutionary changes are not to be anticipated. Whether careful study of other elements of composition, or other vaguely suspected variables, will result in commercial improvements must await the event. It must be remembered that, to be industrially valuable, a process must be both metallurgically and economically workable.

In cases where new patterns are to be made, experimentation as to the most economic methods of manufacture or the best means of securing adequate soundness of casting must be taken into consideration. Castings made without such study, from new equipment, are likely to be inferior.

Finally, it should be remembered that over an extended period of time, the buyer will pay for all he gets and the seller will give value received. There are perfectly good reasons why Detroit's leading citizen does not sell Lincoln and Ford cars in competition with each other.

Canadian Pig Iron Drops

Pig iron production in Canada during August was 58,780 gross tons, 13 per cent under the 67,232 tons reported for July but more than double the output of 26,533 tons for August, 1925. For the eight months ending Aug. 31, 1926, cumulative production amounted to 497,876 tons, an increase of 47 per cent over the 338,351 tons reported for the same period last year.

Laud Trade Data

Manufacturers Also Doubt 5-Day Wisdom

New York, Oct. 12.—Speakers at the annual convention of the National Association of Manufacturers here last week emphasized the value of interchanging trade information, saying it had made possible an extension of the present period of prosperity and demonstrated that within reason business cycles can be controlled. Credit for this condition was largely ascribed to Secretary of Commerce Hoover.

James A. Emery, general counsel for the association, asserted that the Ford 5-day week is impractical for many industries and its application on a national scale would handicap local operators and probably impose a burden on the ultimate consumer. He foresaw demand for legislation for a 5-day week resulting from the Ford announcement and the approval of it by the American Federation of Labor.

Harry E. Hull, commissioner general of immigration, advocated bringing Mexico within the scope of the immigration act. Fully 500,000 Mexicans are now in the United States through evasion of restrictions, he charged.

Mr. Emery also declared that tax reduction is not yet an accomplished fact. What is saved in Washington, he said, is wasted at the state capitols. He recommended for the federal government the repeal of the additional 1 per cent tax burden upon corporations and the reorganization of the federal departments of boards and commissions.

Discussing employment relations, O. D. Foster, committee chairman, stated that the cost of industrial disputes in the 10 years previous to 1925 had been $12,982,048,000. Of this sum, he said, $496,187,000 have been borne by employers, the workers having carried $1,804,316,000 and the public the remainder of $10,681,545,000.

Child labor is on the decrease, according to Howell Chainey, committee chairman. While the southern states still lead in the employment of children between 12 and 15 years of age, there is a steady reduction in such employment in many sections of the South, he declared.

In two short addresses at luncheons of the association, Judge Elbert H. Gary, chairman, United States Steel Corp., praised women in industry and commended the industrial preparedness movement of the manufacturers. He spoke encouragingly of the current outlook of general business.

Discussing the strike of 1919, Judge Gary declared: "I do not want to stir up any controversy, but I think it proper that while I believe in the most generous treatment of workers, I believe that no country will prosper unless men and women are allowed to work whenever and wherever they please, provided there is an agreement between employer and employe."

A letter to Judge Gary from President Coolidge was read at one luncheon by John E. Edgerton, president of the association. The letter follows:

> "I understand that you are to preside at an industrial preparedness luncheon in New York on Thursday, and I wish at that time to express my appreciation of what you have done and are doing in this work.
>
> "The occasion coming a day before your eightieth birthday serves to call attention more strikingly to the unusual character of your service. That you still retain your active interest in public matters is worthy of high commendation.
>
> "My hearty congratulations on your birthday and best wishes for continued health, happiness and opportunities for usefulness.
>
> "Very truly yours,
>
> CALVIN COOLIDGE."

That business conditions will continue active for some time was indicated by a survey presented at the close of the convention. Prospects for the winter were viewed as excellent by 16 per cent, good to fair by 83 per cent and poor by only 1 per cent. Better business than in 1925 was reported by 50 per cent of the manufacturers, while 25 per cent placed it as the same and 25 per cent as lower.

Judge Gary at Eighty

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said, such a week would be wholly impracticable.

"Many units of a great steel plant are compelled to be in continuous operation," he said. "For instance, suppose one were to attempt to close down the furnaces, which can only be restarted at great cost of money and time. But there is another, and in my opinion the most important reason of all. When business is good the demand for steel products cannot be met by a five-day week without materially increasing existing facilities, and that means an expenditure of millions of dollars, which would have to be paid by the consumer.

"That would result in a material reduction of wages throughout American industry, because neither the producer nor the consumer could afford to pay the great additional cost of manufacture.

"I believe that the exigency of the moment demands that American industry take an unequivocal position on this question, so vital to the future prosperity and permanence of our whole business fabric. There can be no equivocation, no time for delving into the region of specious argument."

Judge Gary was asked about prohibition. He declared that the efficiency of the American workman had been decidedly increased on account of prohibition. Asked if he smoked much, he said that at college he had learned to enjoy a pipe, but when he arrived home and his mother kissed him and smelled tobacco on his breath and objected to it, he stopped the habit and never since has been a smoker. The judge said that he used to love shooting and swimming. He also engaged in other outdoor sports. Nowadays his chief outdoor activities are walking and working on his farm. He admitted having a fondness for music, preferring grand opera, particularly the works of Verdi. He does not care much for poetry because it contains so much sentimentalism. The judge said that he has just read a book by Washington Irving but he does not read much. His eyes are good, he said, and he is going to try and keep them good. He told about a visit with Mussolini when he visited Italy, he answered questions on other subjects.

Judge Gary during the interview plainly revealed his human qualities. He was profoundly affected by the many evidences of approval and friendship from a great host of the country's foremost men. He took an humble attitude in considering himself in relation to others. He wished only that he had done better in his life than he actually has. He wished he were a better man and that he were a better Christian.

Limit Open Price Probe

Federal trade association, Washington, is restricting its investigation of open price associations on account of shortage of funds. This is the investigation being made at the request of the senate and which called for data on the number and importance of open price associations, the effect of their activities on prices and the nature of other activities with particular reference to alleged violations of the antitrust laws. The resolution was passed by the senate on March 17, 1925.

Another 600-Foot Lake Vessel Launched

The 600-foot bulk freighter building at the Lorain yards of the American Shipbuilding Co., for the Interlake Steamship Co., the vessel department of Pickands, Mather & Co., was launched last Thursday. The steamer is named in honor of William McLauchlan, who started in the shipping business in 1873 with the Cleveland Iron Mining Co., and ten years later joined Col. James Pickands and Samuel Mather who were then organizing the firm of Pickands, Mather & Co. He retired from the firm in which he was a partner in 1918.

The steamer is capable of carrying 11,000 tons of iron ore on the present lake draft. It is a duplicate of the Col. James Pickands and the Samuel Mather which were built at the Lorain yards last spring. The Interlake fleet is second largest to that of the Pittsburgh Steamship Co., subsidiary of the United States Steel Corp., and it numbers some 50 boats.

Pyrometers were not used in this country to measure the temperature of blast furnaces until 1862, when Edward Brown, Philadelphia, introduced an English pyrometer, which was succeeded in 1869 by improved instruments of his own invention.

Upholds Indiana Rates

Washington, Oct. 12.—J. J. Williams, examiner, interstate commerce commission, in a proposed report has found that the rate charged on angles, channels and beams, in carloads, moving interstate from Indiana Harbor, Ind., to Indianapolis are not inapplicable or otherwise unlawful. He recommends that the complaint of the Inland Steel Co. in this case against the Chesapeake & Ohio railroad be dismissed.

Beehive Output Off

Production of beehive coke in the week ended Oct. 2 totaled 185,000 net tons, a decline of 12,000 tons from the preceding week but on a parity with the corresponding week of 1925, according to the federal bureau of mines. For the year to date, output has reached 9,042,000 tons, which compares with only 7,238,000 tons for the similar period of 1925. The daily average output for 1926 is 39,000 tons, or 9000 over the 1925 average. Bituminous coal production for 1926 to date is 409,953,000 net tons, against 369,228,000 tons up to Oct. 2, 1925.

COKE (Net tons)

	Week ended Oct. 2, 1926b	Sept. 25, 1926c	1926 to date	1925 to date*
Pennsylvania and Ohio....	152,000	163,000	7,363,000	5,503,000
W. Virginia	16,000	15,000	580,000	458,000
Ala., Ky., Tenn., and Ga.	4,000	6,000	498,000	682,000
Virginia	6,000	6,000	273,000	266,000
Col. and N. Mexico	4,000	4,00	198,000	181,000
Wash. and Utah	3,000	3,000	130,000	148,000
U. S. Total	185,000	197,000	9,042,000	7,238,000
Daily average	31,000	33,000	39,000	30,000

*Adjusted to make comparable the number of days in the two years. (b) Subject to revision. (c) Revised since last report.

Will Enlarge Coke Plant

Alabama By-Products Corp., Morris Bush, president, plans immediate construction of 49 by-product coke ovens, in Tarrant City, near Birmingham, Ala. The present plant has a daily output around 1200 tons of coke daily and the 49 ovens to be built will have about the same output. Representatives of the Koppers Co. are in the Birmingham field ready to begin operations. The addition will cost upward of $2,500,000.

Discuss Need of Better Cost Methods

INCREASING interest of foundrymen in exact cost methods was displayed at the session on foundry costs at the Detroit convention of the American Foundrymen's association. Fully 175 foundrymen, including some 60 owners and executives, attended.

E. W. McCullough, manager of the department of manufacture, Chamber of Commerce of the United States, Washington, presented a paper on "Progress of Cost Accounting in Industry." To build up a uniform cost system in the industry, Mr. McCullough stated, it first is necessary to sell the industry on the proposition and, second, to set up a cost committee to develop its use. More than 125 trade associations to date have adopted cost systems, it was pointed out, and the jobbing foundry which does not know its own exact costs is pursuing unsafe practices.

"Foundry Cost Accounting" was the title of a paper read by Robert E. Belt, American Malleable Castings association, Cleveland. The foundry industry, Mr. Belt reminded, is highly competitive and to market castings without a knowledge of what it costs to produce them is hazardous, although today two-thirds of the jobbing foundries in the country do not know where they are making or losing money and hence in quoting on work do not know whether or not they can expect a reasonable profit on the order.

A resolution was adopted unanimously stating that it is a function of the American Foundrymen's association to assist materially in the adoption of a uniform cost system by the foundrymen, it being the sense of the meeting that a committee on costs be appointed to proceed with the work of interesting foundrymen in costing methods, preferably through the local foundry group method. A. E. Carter, Barlow Foundry Co., Newark, N. J., in discussing the resolution, stated that uniform cost adoption is coming largely through the medium of local foundrymen's associations, and urged such groups to obtain member interest through cost work and not by mixing into controversial labor problems.

Approve Weights on Prints

Upon presentation of the question by A. B. Root, Jr., president of the American Foundrymen's association, the meeting voted approval of the plan offered whereby foundries should insert weights on casting blueprints in figuring jobs. Considerable discussion attended the plan, H. V. Crawford, General Electric Co., Schenectady, N. Y., vigorously opposing the matter on the grounds of cost, uncertainty as to the weight of castings ascertainable from the dimensions of finished parts and allowances for machining. Among those approving the plan in discussion were: H. L. Parr, Standard Calorimeter Co., East Moline, Ill.; E. B. Hazen, Brass Foundry Co., Peoria, Ill.; A. L. Carter, Barlow Foundry Co., Newark, N. J.; B. G. Parker, general manager, Youngstown Foundry & Machine Co., Youngstown, O., and Leon S. Hull, Climax Engineering Co., Clinton, Iowa.

President Root, in presenting the plan, stated that of 7800 questionnaires sent out by the association, some 2000 were returned, of which 1800 approved, 112 opposed, and 34 approved the suggestion with modifications. The principal opposition, it appeared, was on the grounds of frequent alterations requiring increased clerical work. A plan modified from the original was offered because of the great size of some of the objections.

Laying Blast Furnace Linings

Involves Careful Bonding

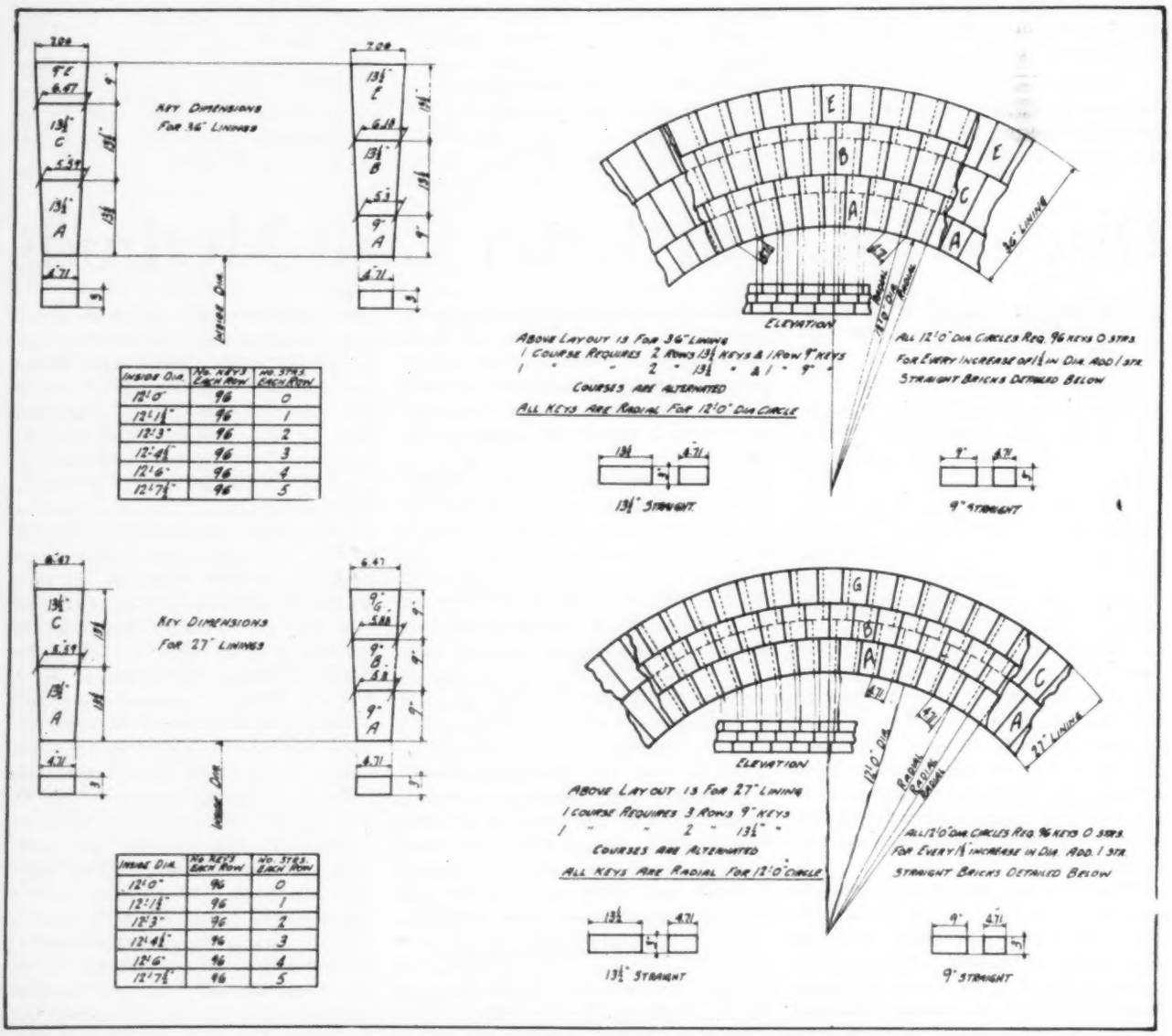
Breaking All Joints of the Circular Brickwork Gives a Tightly Bonded Wall, Increases the Mechanical Safety Factor, Prolongs the Life of Refractories and Decreases Labor Costs—Description of Recently Devised Method

By Wallace A. Stuart

BLAST furnace linings are subject to more severe service than any other brickwork. In the construction of straight walls, the bonding always has been considered at least as important as the material; the bond used must break every joint vertically and horizontally in every course. The dimensions of the brick used in blast furnace linings do not permit of the bonding which is considered essential in ordinary brickwork. It is not uncommon to find joints lined up for a vertical distance of 18 inches in present linings. In many cases the comparatively short life of many linings is traceable to this failure to break all joints, yet by breaking all joints greatly increases the mechanical factor of safety for the furnace.

Joints in a blast furnace lining can be broken as accurately and positively as those in a straight wall by employing a recently devised method. The accompanying illustrations show how this may be accomplished. The key bricks and straights have dimensions based upon the correct ratio of circumference and diameter; therefore, being mathematically correct, they will divide any circumference equally. The 13½ and the 9-inch brick now used have different dimensions on their inner end, that is, the end that has to fit around the cir-

The author, Wallace A. Stuart, is associated with Brooke L. Jarrett & Co., Pittsburgh.


KEY DIMENSIONS FOR 36" LININGS
ELEVATION
ABOVE LAYOUT IS FOR 36" LINING
1 COURSE REQUIRES 2 ROWS 13½ KEYS & 1 ROW 9" KEYS
COURSES ARE ALTERNATED
ALL KEYS ARE RADIAL FOR 12'0" DIA CIRCLE
ALL 12'0" DIA CIRCLES REQ. 96 KEYS 0 STRS.
FOR EVERY INCREASE OF 1/4" IN DIA. ADD 1 STR.
STRAIGHT BRICKS DETAILED BELOW
13½" STRAIGHT
9" STRAIGHT
KEY DIMENSIONS FOR 27" LININGS
ABOVE LAYOUT IS FOR 27" LINING
1 COURSE REQUIRES 3 ROWS 9" KEYS
2 " 13½" "
COURSES ARE ALTERNATED
ALL KEYS ARE RADIAL FOR 12'0" CIRCLE
ALL 12'0" DIA CIRCLES REQ. 96 KEYS 0 STRS.
FOR EVERY 1/4" INCREASE IN DIA. ADD 1 STR.
STRAIGHT BRICKS DETAILED BELOW
13½" STRAIGHT
9" STRAIGHT

INSIDE DIA.	NO. KEYS EACH ROW	NO. STRS. EACH ROW
12'0"	96	0
12'1¼"	96	1
12'3"	96	2
12'4¼"	96	3
12'6"	96	4
12'7½"	96	5

INSIDE DIA.	NO. KEYS EACH ROW	NO. STRS. EACH ROW
12'0"	96	0
12'1¼"	96	1
12'3"	96	2
12'4¼"	96	3
12'6"	96	4
12'7½"	96	5

SCHEMATIC DIAGRAM OF BLAST FURNACE LININGS 27 AND 36 INCHES THICK, SHOWING THE NUMBER OF KEYS AND STRAIGHTS REQUIRED

cumference of the circle to be turned and it is difficult if not impossible to break all joints with these bricks. The method devised by the author calls for one set of keys for each thickness of lining, the usual thicknesses being 27 inches, 36 inches and 40½ inches. The accompanying illustrations show the arrangement and sizes of keys and straights used with the foregoing thicknesses. The 9 and 13½-inch keys have the same dimension on the inner ends. Consequently, there always will be the same number of bricks in the same sized circle. It is not possible to break all joints when one course has 9-inch keys and the courses immediately above and below it 13½-inch keys.

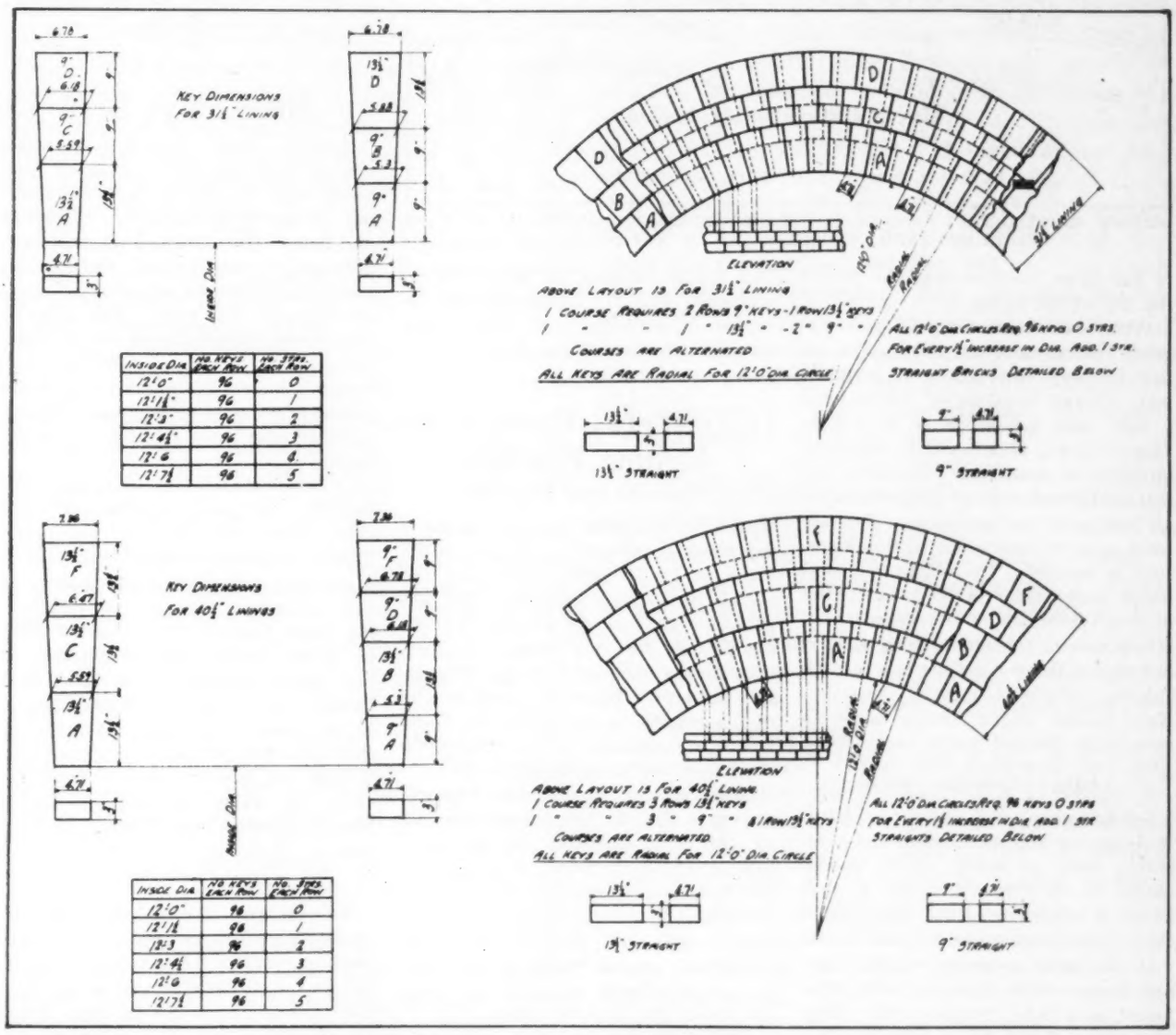
If, as an illustration, a circle 12-foot in diameter is taken as the base and the circumference of this circle is divided into 96 equal parts, a dimension of 4.71 inches, which is 1½ times 3.1416, is obtained. This dimension is used for the inner end of both the 9-inch and 13½-inch keys. The sides of the keys are made radial and when carried back to the depth of 9 and 13½-inch keys, which is the key brick length, the outer end dimension of the key is secured and this, of course, divides the larger circumference into 96 equal parts also.

How Circle Is Completed

If the diameter of a circle is multiplied by 3.1416 the circumference is obtained. If the 12-foot diameter is increased 1 inch this is equivalent to adding 3.1416 inches to the circumference and one straight brick of this length will fill in and complete the turning of such a circle. This is true because the growth always is constant in the circumference, whether it is the inner or outer end of the key brick. This is shown in the accompanying illustration.

In this particular case a straight brick 4.71 inches wide is used because it more nearly conforms to the present standard straight-brick width, which is 4½ inches. With this size the table for a 12-foot diameter circle calls for 96 keys and no straights and for every increase of 1½ inches in the diameter, one straight-sided brick is added to complete the circle.

An important factor in laying brick is to break the joint. This idea has been ignored frequently in laying blast-furnace circles and is probably due to the constant changing lines within the furnace itself. At present the key brick dimensions used in turning circles, which are standardized for every brick manufacturer, are of such dimensions that it is almost impossible to break joints. This is due to the fact that 9-inch and 13½-inch keys each have different dimensions on their inner ends, or the end that has to fit around the circumference on the circle to be turned. Moreover, the dimensions adopted as standard are not based upon the ratio of the circumference to the diameter


KEY DIMENSIONS FOR 3½" LINING
INSIDE DIA
ELEVATION
ABOVE LAYOUT IS FOR 3½" LINING
1 COURSE REQUIRES 2 ROWS 9" KEYS - 1 ROW 13½" KEYS
1 " " 1 " 13½" " - 2" 9" "
COURSES ARE ALTERNATED
ALL KEYS ARE RADIAL FOR 12'0" DIA CIRCLE
ALL 12'0" DIA CIRCLES REQ. 96 KEYS 0 STRS.
FOR EVERY 1½" INCREASE IN DIA. ADD 1 STR.
STRAIGHT BRICKS DETAILED BELOW
13½" STRAIGHT
9" STRAIGHT
KEY DIMENSIONS FOR 40½" LININGS
INSIDE DIA
ELEVATION
ABOVE LAYOUT IS FOR 40½" LINING
1 COURSE REQUIRES 3 ROWS 13½" KEYS
1 " " 3 " 9" " & 1 ROW 13½" KEYS
COURSES ARE ALTERNATED
ALL KEYS ARE RADIAL FOR 12'0" DIA CIRCLE
ALL 12'0" DIA CIRCLES REQ. 96 KEYS 0 STRS
FOR EVERY 1½ INCREASE IN DIA ADD 1 STR
STRAIGHTS DETAILED BELOW
13½" STRAIGHT
9" STRAIGHT

INSIDE DIA	NO. KEYS EACH ROW	NO. STRS. EACH ROW
12'0"	96	0
12'1½"	96	1
12'3"	96	2
12'4½"	96	3
12'6"	96	4
12'7½"	96	5

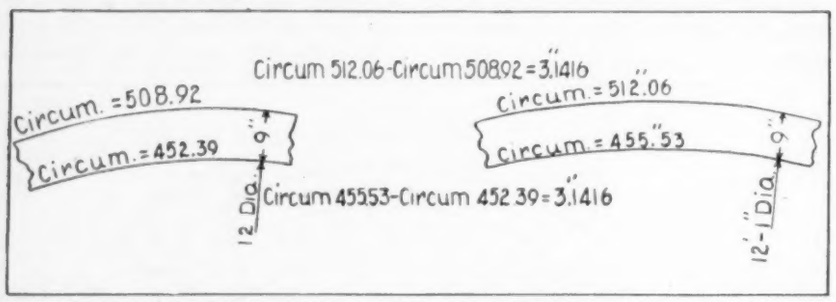
INSIDE DIA	NO. KEYS EACH ROW	NO. STRS. EACH ROW
12'0"	96	0
12'1½"	96	1
12'3"	96	2
12'4½"	96	3
12'6"	96	4
12'7½"	96	5

SCHEMATIC DIAGRAM OF BLAST FURNACE LININGS 31½ AND 40½ INCHES THICK, SHOWING THE NUMBER OF KEYS AND STRAIGHTS REQUIRED

and, therefore, could not be divided equally into the various circumferences.

When both key bricks and straights, with dimensions based upon this ratio of circumference to diameter, are designed mathematically correct, they will divide any circumference equally. Both the 9-inch and 13½-inch keys have the same dimensions on their inner ends and there always will be the same number of each brick in the same diameter circle. This assures the positive break in the joints when one course of brick uses 9-inch keys and the course directly above or below uses 13½-inch keys.

Tight joints are desirable in any brick construction and this is especially true where heat is encountered. In blast furnace practice intense heat not only exists but also an air pressure of about 16 pounds to the square inch. Therefore, the tighter the joints in the brick construction, the longer the life of the lining.



SKETCH SHOWING THAT GROWTH IN THE CIRCUMFERENCE ALWAYS IS CONSTANT IN THE INNER OR OUTER END OF KEY BRICK

With brick conforming to the foregoing description, it is possible to line up any two joints, if properly laid, and this breaking of joints, gives a tight wall bonded in all directions. This, in turn, permits of a maximum strength of wall and establishes the maximum resistence to the penetration of heat and air pressure. Furthermore, a more nearly monolithic structure is secured. The slight variation, which might occur in the manufacture of this type brick, will average themselves around the circle being turned; but should this not be the case a little cutting will rectify this variation. Even though slight cutting is necessary, tight bonded joints are secured.

Linings Undergo Abuse

Considerable care now is exercised in designing hot-blast stoves and some stoves have as many as 54 special shapes in their make-up, yet a stove never is subjected to the same abuse that a blast furnace undergoes. Stoves will last over a period of 22 years and longer, while approximately eight years is a long furnace life. Why such care should be shown in stove design and none in blast furnaces cannot be explained. A furnace has to withstand more intense heat and also the abrasive action of coke, ore and limestone as they move into the melting zone. Tight joints will withstand this wear.

A savings ranging from $400 to $600 can be saved on the labor costs of laying up a lining such as previously described, because such a lining should go together with the minimum of cutting. The added production due to longer life of the lining also should reduce the cost of refractories per ton of iron made, which gives an additional saving. Another advantage is that the engineer could estimate his requirements closely. The calculations are greatly simplified because every course requires the same number of 9-inch and 13½-inch keys for the same circle. All that need be remembered is that a 12-foot diameter circle requires 90 keys and no straights, and, for every 1½-inch increase in diameter over 12-feet, one straight brick must be added.

Industrial Furnaces in Melting Practice

(*Concluded from Page* 983)

melted by the heat supplied, while it functions as a heating furnace in so much as the crucibles containing the metal, are simply heated. The hot gases do not come in contact with the metal, and for this reason the furnace differs from other types of melting furnaces. While an absolute seal of the crucible is impossible the metal is not contaminated to any degree by the impurities in the waste gases.

Being of the regenerative type as shown in Fig. 20, the furnace operates on the same principle as the open-hearth, but with fewer complications. As there is no considerable amount of suspended matter in the waste gases, slag pockets are not provided. Furthermore, several melting chambers are supplied with gas and air from the same gas and air flues.

While the regenerative principle mainly is employed on crucible melting furnaces there are others of a simple type, in which the crucible rests on a bed of coke, or charcoal. In some plants the crucibles are heated by an oil flame.

The efficiency of furnaces, in which metal is melted in any container, must necessarily be low, because the heat is required to penetrate the container. That this is the case is evidenced from the fact that from 1600 to 2200 pounds of coal, as fired in gas producers, is required to melt a ton of steel.

The short flame travel of 3 to 5 feet, and the impingement of the flame on the cold crucibles tend to reduce heating efficiency. To offset this condition a combustion chamber is provided in which the gas and air meet, before flowing into the melting chamber.

The advent of the electric furnace used for melting in the manufacture of high-grade tool steels, has checked the construction of crucible plants and in many instances has replaced furnaces of the crucible type.

Spain Buys Less

Machine tool imports of Spain amounted to $863,843 in 1925, as compared with $1,825,986 in 1924, showing a loss of $962,143, or nearly 53 per cent. Two leading factors contributed to this radical decline, one being the depressed condition of Spanish industry last year. The other is the recent establishment of a rapidly growing machine tool manufacturing company which enjoys a government subsidy and has capacity sufficient for most of the native demand.

Of the total 1925 machine tool imports, Germany supplied 41 per cent, Great Britain 34 per cent, France 11 per cent and United States 5 per cent. The changing balance of this market is revealed by comparing these figures with those of 1924, in which Great Britain showed 63 per cent, Germany 12 per cent, France 7 per cent and United States 5 per cent. American participation evidently has remained constant, although, on account of the total decline, the value supplied by United States dropped from $103,454 to $45,611.

The quantity of case hardening compound consumed in the United Kingdom cannot be ascertained exactly, but one firm estimates it is at least 300 to 400 tons a month, says Trade Commissioner Fox, at London, reporting to the department of commerce.

Editorials

Judge Gary at 80

WHEN a man attains the age of 80 years and continues in useful activity, according to common day standards, it is rightly a matter of congratulation to himself and to those things with which his efforts are associated. But when that man occupies a post of commanding prominence and influence, won and sustained by a long record of distinguished leadership and of practical wisdom, it becomes more than a matter of personal or private appraisal. Properly, the prolongation of his life and work represent a national asset.

It is in this light that Judge Gary stands before his countrymen today. Called to the head of the world's greatest corporation 25 years ago at a time when large corporations were denied public favor and facing extraordinary requirements of management because of the size and the character of the enterprise, his position not only was beset with extreme difficulties but gradually forced upon him the task of serving as spokesman for American business. How well his patience, tact and statesmanlike qualities have served him in this great test of mind and heart, can be gaged from the recognition that is generally given today to the constructive part he has played in bringing about a better American life.

Probably to Judge Gary more than to any other single living individual, American business owes a large debt for having helped it to the acceptance of higher standards and a philosophy of conduct that clearly has proved itself for the common good.

First Agreements Bring Advances

WHEN congress at the last session abolished the railroad labor board, upon which the public as well as the railroads and labor had representation, a cogent argument of the opposition was that the tendency would be toward agreement between the carriers and their employes at the expenses of the public. This was in face of the record of the labor board, which showed the public's representatives much more sympathetic toward labor than the railroads.

Nevertheless, the first important negotiations between the railroads and their employes under the new direct conference plan has resulted in wage advances. The New York Central has granted its shopmen 3 cents more per hour, while the Baltimore & Ohio has allowed 2 cents additional plus time and one half for Sundays and holidays. The Pennsylvania is now conferring with its shopmen over a requested 3-cent rise. On the other hand, the trunk lines have not settled with their conductors and trainmen and the creation of an arbitration board, on which the public will sit, is in process.

Industry, meaning thereby shippers, is interested in railroad labor peace and a wage that insures continuance of the present expansive purchasing power. At the same time it realizes that the railroads cannot absorb all of the advances and must of necessity pass a portion along to the public.

Civil Aviation Should Expand

TOTAL airway mileage in the United States has grown to 9500, of which 6500 has come in the past eight months, it is pointed out by William P. MacCracken Jr., recently appointed assistant secretary of commerce in charge of the new bureau of aviation. Mr. MacCracken declares air transportation is performing an economic service that is worth the cost.

If this observation is accurate, the air service should and will grow. It is something that captures the popular imagination, without too much stress on the immediate and personal utility. Whether the heavy finished steel industry will benefit, both from the standpoint of providing materials for construction and for actual transportation purposes, is moot. Nevertheless, the industry wishes civil aviation well.

September Bookings No Gage

TO RAILROAD buying, chiefly of rails, is largely credited the gain of 51,174 tons in the Sept. 30 unfilled tonnage report of the United States Steel Corp. The inference has been drawn that general bookings slumped in September and a decline from Aug. 31 was averted only by the heavy and unusually early activity of the railroads.

The fact is that September bookings are not a reliable gage of the market. For 17 years, including the present one, the Steel corporation has been announcing its unfilled tonnage by months. In nine of these years Sept. 30 unfilled tonnage has increased over that of Aug. 31; in eight it has lost ground. Obviously, September could swing moderately in either direction without indicating a trend.

It is again worthy of note that hand-to-mouth buying has created a position where unfilled ton-

nage is wholly disproportionate to the rate of activity in the steel industry. The Steel corporation's unfilled orders as of Sept. 30 totaled 3,593,509 tons. Only twice in 17 years—in 1924 and again in 1910—has unfilled tonnage been lower at the end of September. Yet rarely in 17 years have the corporation's operations been more satisfactory. Even 1914, of bitter memory, revealed a better tonnage position than today. The high point for Sept. 30 came in 1920, with 10,374,804 tons, or almost three times the current corporation backlog, but today's outlook is decidedly more favorable.

Labor Gains as Federation Slips

ITS annual convention, at Detroit, has provided the American Federation of Labor with another opportunity for restating its social platform, casting itself for some special roles in the coming year and berating the opposition. A kindly explanation of some of the federation's pronouncements is that it, like many another organization, must make the most of its brief moment of limelight before it slips again into the shadows.

Henry Ford's announcement of a 5-day week in his industries comes propitiously, permitting the federation to claim it as its own goal. The enslaved worker must be rescued from the "debilitating effects of the grinding roar and noise of modern plants." It so happens that close to 80 per cent of the federation's membership consists of postal clerks, painters, musicians and similar craftsmen who know nothing of assembly lines, and without going to the rescue of alleged automatons the federation cannot maintain its own membership. Some will rightly recall that the Ford organization is decidedly open shop and wonder if the 5-day week would have been possible were Ford workmen geared by union limitations to the pace of the slowest.

That company unions are making headway is to be inferred from the declaration of war emanating from the Detroit convention. Company unions, with stock ownership and employe representation, are denounced as stumbling blocks to collective bargaining. Few will appraise it as mere coincidence that industrial tranquility has been pronounced at a time when capital and labor have recognized that their interests are mutual and have drawn closely together. A third party would disturb the balance.

Membership in the federation continues to decrease. The per capita tax for 1926 has been paid by 2,813,000, a decrease of 64,000 from 1925. In addition, some 500,000 claimed by the federation are on strike, unemployed or otherwise incapable of maintaining their cards. It will be recalled that the federation reached its peak in 1920, with 4,100,000 dues payers. Another year has come and gone, unparalleled prosperity has been the sequel to continued employment and high wages, some of the great industries, notably steel, are still unorganized, the hours of labor are tending downward—and at the same time the federation of labor has lost ground. The deduction is obvious.

Concrete Bar Consumption Gaining

CONTINUED development of building programs requiring large tonnages of concrete bars indicate that less tendency is being shown to curtail activities as the winter season approaches. Improvement of construction methods to overcome handicaps formerly met in successfully pouring concrete during the winter is expected to maintain a more even volume of concrete bar demand.

After a summer of unusually heavy demands, reinforcing bar sellers continue to receive numerous and large inquiries. In past years, new projects began to diminish in number with the start of the fourth quarter. If buying is maintained at the present rate through the last three months of 1926, this year will set a record in concrete reinforcing bar consumption.

What Our Readers Are Thinking

Liberal Wages vs. Profit Sharing

DURING the exaltation begot of the war we talked glowingly of the democratization of industry, of workers' representation on boards of directors, as a cureall for our industrial ills, but that talk was largely chimerical, and the plan, like much else that was visionary during those days of moral elation, has so far as I know been abandoned. It is well that it has been, for business is a conflict, and can't be run by a debating society.

It needs power and authority vested in a single individual to run it profitably. Leadership must exist if success is to be achieved, and no board or committee can serve as a substitute for centralized executive direction under a competent individual.

The successful man always has a big following, the successful industry, built up and operated by its owner, rarely has labor trouble. It doesn't have to use profit sharing or other schemes to insure co-operation. Liberal wages for work performed will insure that.

The workers are interested in earnings they can immediately receive in cash, not in those that are deferred for six or 12 months, or are conditioned on the continued success of the business.—CHARLES PIEZ, *chairman Link-Belt Co., in address before Congress of American Industry, Philadelphia, Sept. 22.*

The Reader's Page

Vol. LXXIX, No. 16 IRON TRADE REVIEW Oct. 14, 1926

The Most Dramatic Day in Judge Gary's Life

LAST Friday seemed to be the most dramatic day in the life of E. H. Gary. His eightieth birthday anniversary, finding him at the helm of the world's greatest industrial organization, whose fortunes he has guided for 25 years; surrounded by friends, recipient of congratulatory messages from leaders in business, finance and public life, was the climax to a long and useful career. Other days certainly have been more eventful, but none could have been filled with so much satisfaction, as when he understood genuinely what those who know him best think of him. It was an extraordinary tribute of affection, admiration and appreciation; the leading article in this issue pictures it for our readers. And all who read will share in the sentiment expressed in one of those messages: "May a kindly fate spare him for a blessed evening of life."

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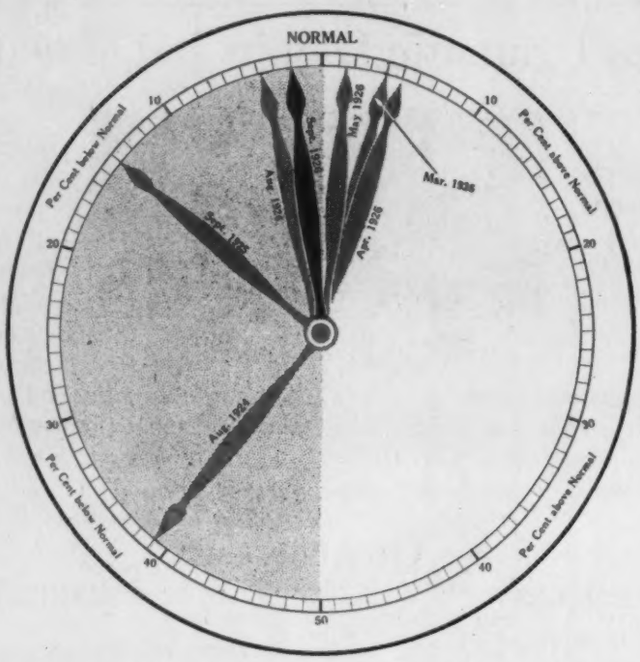
The Business Trend

Blast Furnace

The Dial represents the Blast Furnace Index of Business which is based upon a 40-year record of furnace activity. It is a barometer of general trade.



Business Dial

When 60 per cent of all the country's furnaces are in blast business conditions are normal. The Index is now lower than the normal point on the dial.

Blast Furnace Activity Increases

BY JOHN W. HILL, Financial Editor

AFTER declining steadily for four months the Blast Furnace Business Dial reversed itself and moved forward slightly in September. The number of blast furnaces active at the close of the month was 216, a net gain of one. There are now 371 furnaces in the country and of these 58.2 per cent were in blast on Sept. 30 compared with 57.8 per cent one month before a theoretical normal of 60 per cent.

THE Blast Furnace Dial, reflecting the steadiness and strength of general business, has swung within narrow limits during the present year. At the peak of furnace activity in April the percentage of blast furnace activity was 5 per cent above normal. At its lowest point in August it was less than 4 per cent below normal. At the close of September the Dial had recovered to 2 per cent below its normal point.

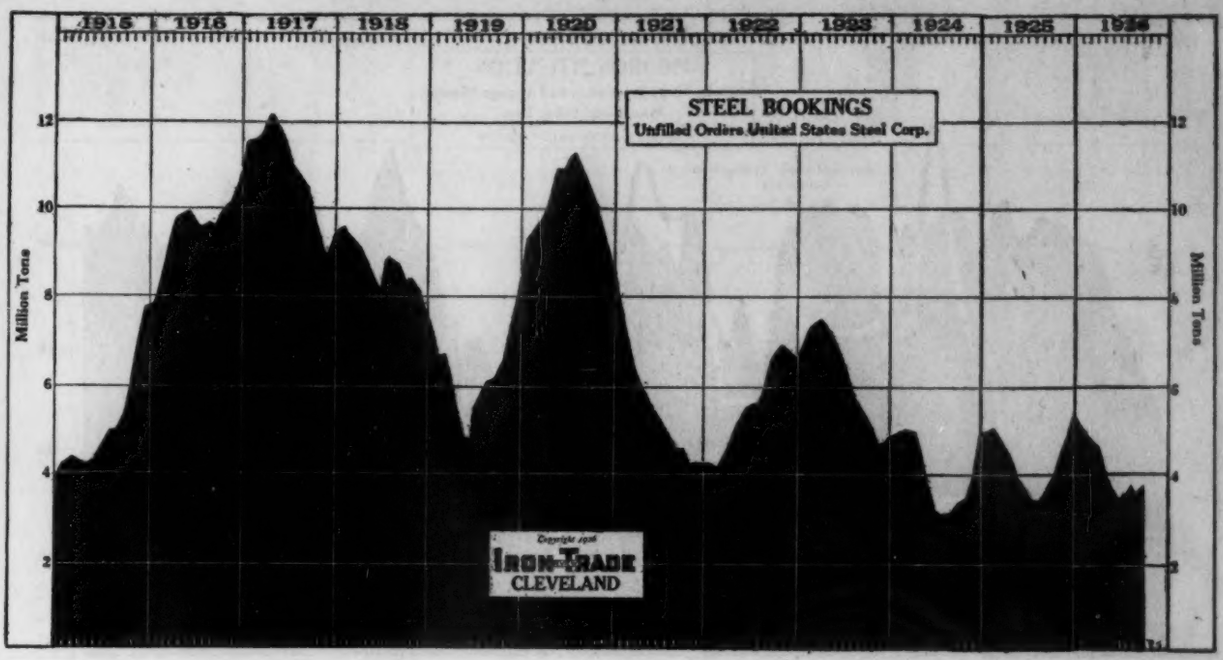
IN ADDITION to the rise in pig iron production other favorable basic exhibits for September included increases for railroad freight car orders, for Bradstreet's commodity prices and for unfilled orders of the United States Steel Corp. Car buying was the greatest for any month since last July, and the gain in unfilled orders is largely due to better purchases of rails and equipment by the railroads.

ALTHOUGH substantial buying of rails is reported, mills will not begin to roll these orders on a large scale until early next year. Meanwhile, the small decline of the production of ingots during September would indicate there was some slight slackening of general buying in steel. Since steel production is closely timed with current demand, any slack in buying should immediately be reflected in lessened operations.

ACTIVITY in the steel trade is largely dependent upon four great consuming industries of building, automobile, railroads and oil, gas and water together with miscellaneous consumption. Until recently, all these lines were active in the steel market except railroads. Now building is slightly less vigorous, but the auto trade remains strong and railroads are buying more.

IT NOW seems probable that the railroads will enlarge their purchases sufficiently to offset any slowing down, seasonal or otherwise, which might develop in the other consuming sources. As yet there are no clear signs of any serious recession in these directions. For that reason, the outlook for the steel industry remains good, even though some slight pause in operation is possible pending production of rail orders.

The Business Trend

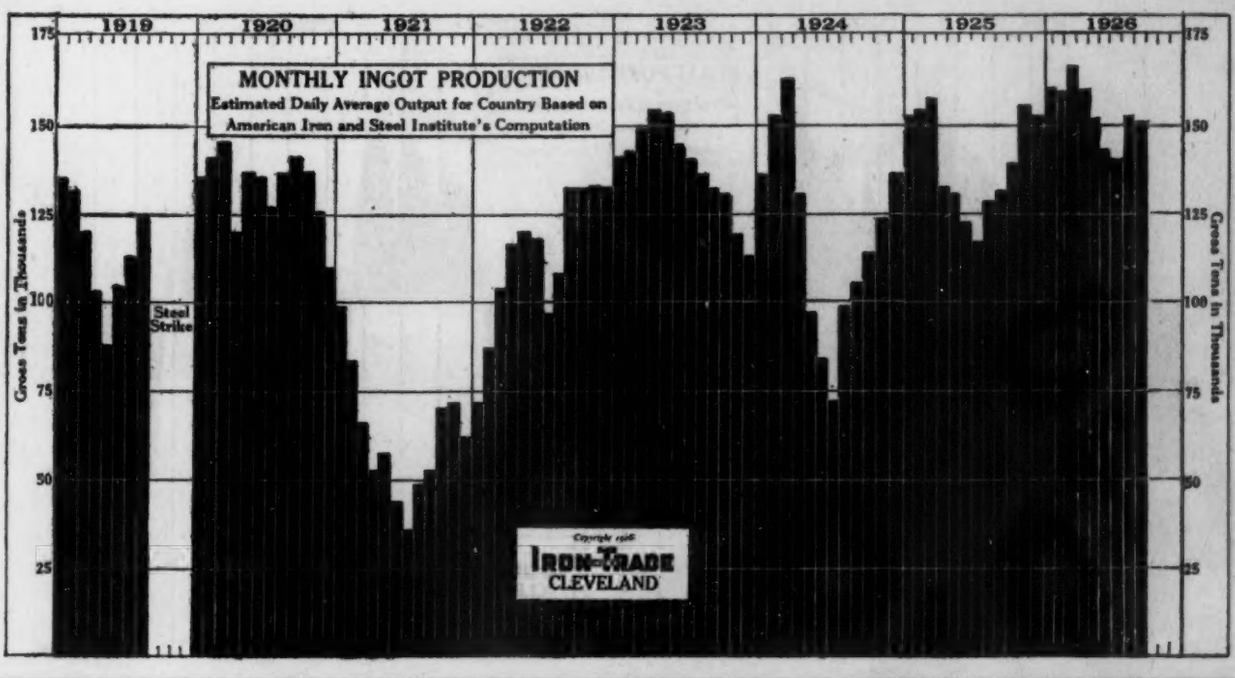


Unfilled Orders

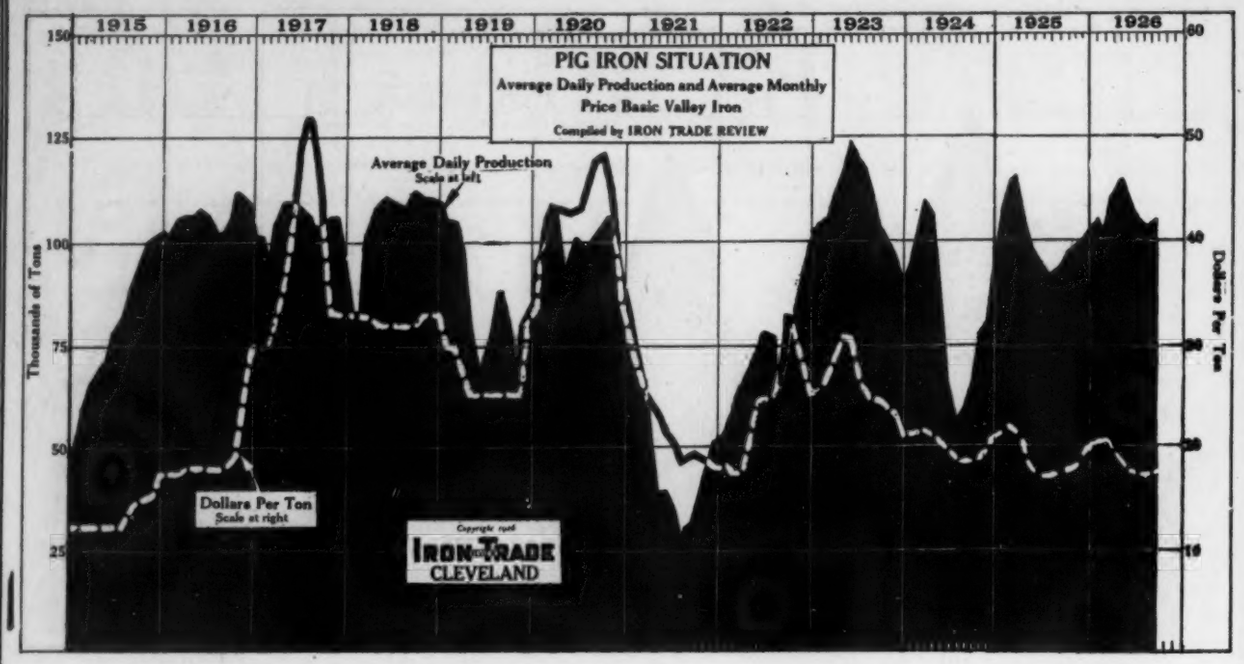
UNFILLED orders of the United States Steel Corp. as of Sept. 30, showed a gain of 51,174 tons over the amount reported for one month before. The tonnage at the close of the month aggregated 3,593,509 tons, compared with 3,542,335 tons on Aug. 31, 1926, and 3,717,297 tons on Sept. 30, 1925. The increase was largely due to heavy contracts for steel rails placed by the railroads in the last days of September. In September, 1925, there was an increase of 205,000 tons over the bookings of Aug. 31, 1925.

Ingot Production

DURING September steel mills operated at 84.19 per cent of their theoretical capacity. This compared with 85.78 per cent in August. The daily average rate of production was 151,180 tons compared with 154,022 tons in the previous month and a daily average of 134,214 tons in September, 1925. Nine months' production of ingots amounts to 35,846,850 tons, an increase of 10.7 per cent over the total for the corresponding period one year ago and a new record for all time.



The Business Trend

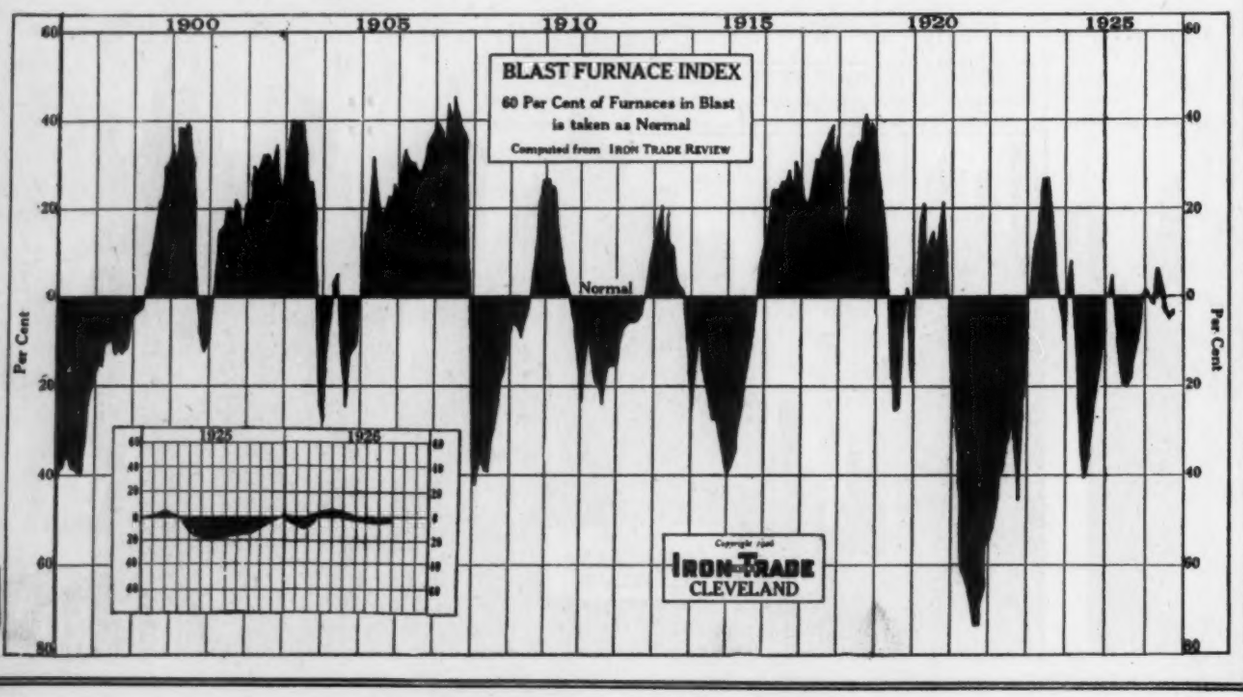


Pig Iron Situation

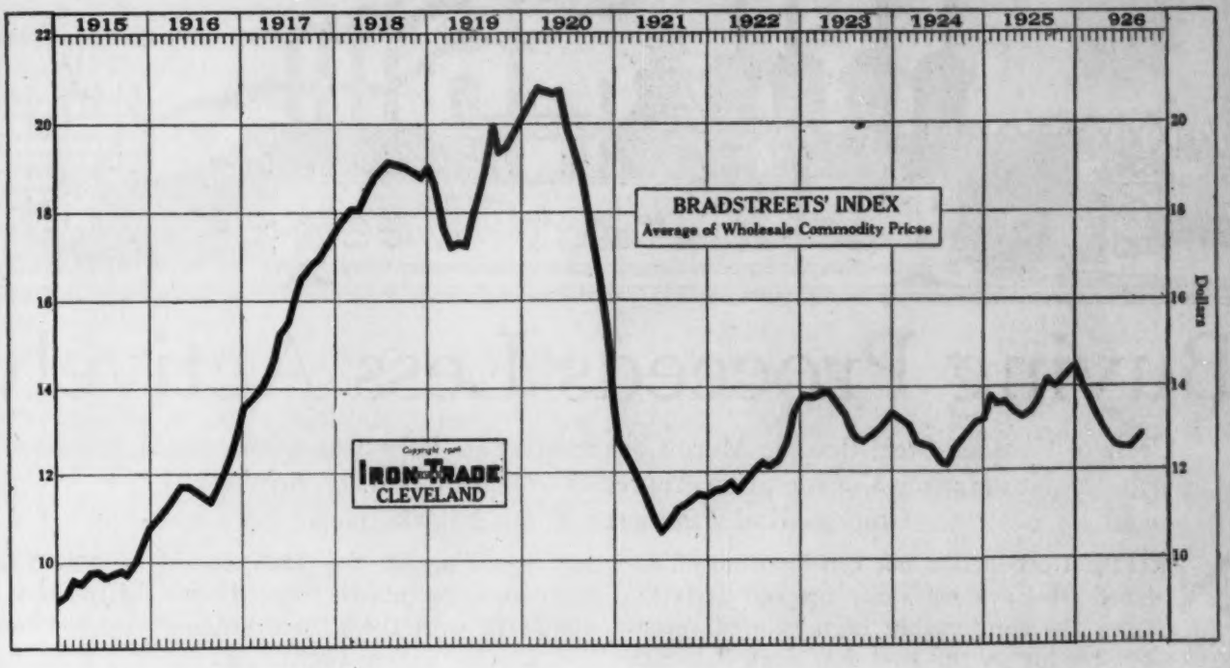
PIG iron production reached its peak for the year in April and started to decline in May. The recession continued through four months. In September the trend turned upward with the daily average rate of output amounting to 105,386 tons against 103,349 tons in August and 90,862 tons in September, 1925. The month's daily average was the largest for any other September in history excepting for the two war years of 1916 and 1918. Coincident with increased output, prices are firmer.

Blast Furnace Index

THE number of active blast furnaces in the country at the end of September amounted to 216. This compared with 215 one month before and showed a net gain of one furnace in blast. There are now 371 furnaces available for use and of these 58.2 per cent were active at the close of September, against 57.8 per cent at the close of August and the high point of 63 per cent in April. Since 60 per cent is the theoretical normal, furnace activity on Sept. 30 was only 2 per cent below its normal point.



The Business Trend

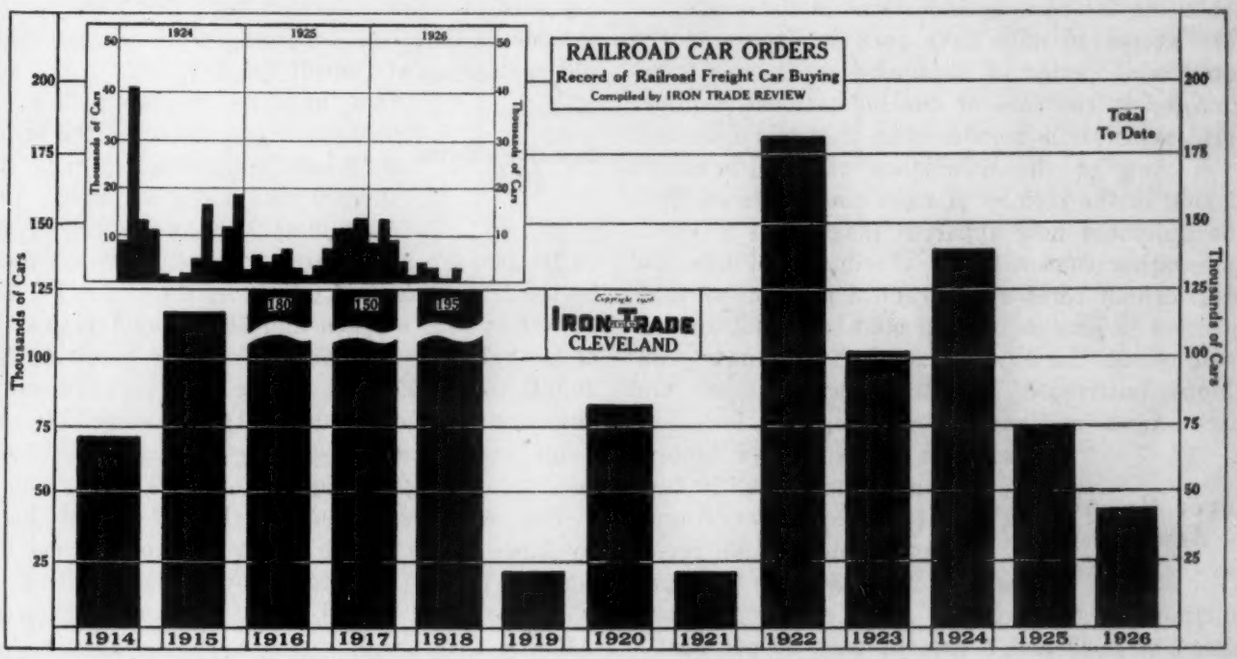


Bradstreets Prices

THE trend of commodity prices as reflected by Bradstreet's index number was upward in September, as in August. On Oct. 1 the index showed a gain of seven-tenths of one per cent compared with a gain of four-tenths of one per cent during August, following eight successive declines. The current index number is 9.6 per cent lower than it was one year ago and 1.6 per cent lower than it was two years before. The number is 38 per cent lower than it was at the peak reached in 1920.

Freight Car Awards

TANGIBLE evidence of more active buying by the railroads is seen in the increased number of orders for equipment during September. The total of 3335 freight cars purchased last month made September the best month since June for equipment makers. For the year to date, 44,620 cars have been ordered and it is estimated that 25,000 more will be placed this year. If this program is carried out the total of buying for 1926 will come within striking distance of the aggregate for 1925.



Buying Proceeds Less Actively

Users of Finished Steel Become More Conservative in Their Commitments Although Not Halting Consumption Appreciably—Sheet Position Stronger—Chicago Rail Purchases Total 200,000 Tons

NEITHER production nor consumption of finished steel evidences any marked deviation from the comfortably high rate of recent weeks but buying in the past few days has been characterized with a shade less vigor. To some extent this condition is ascribed to the heavy specifying against third quarter contracts at the close of September. Freight car buying has not quite met expectations and placements of rails, while heavy, have been about normal. Structural lines are not productive of tonnage at this season.

Contrariwise, sheet mills are operating at a still faster pace, tin plate production continues at a rate that promises to leave the 1925 record behind by 10 to 15 per cent, pig iron prices are firmer with a steady undercurrent of buying and the steel ingot rate for the industry as a whole continues not far from 85 per cent. With some large producing interests specifications in the aggregate for October to date have been in excess of the comparable period of September by a wide margin, and in the case of one independent, October ingot schedule is heavier than that of September.

In view of the dominance of hand-to-mouth buying in the policies of most consumers of steel, the quietness now apparent may prove a variation rather than a trend. Producers of iron and steel cannot foresee any radical revision of their position so long as general business conditions remain sound, the buying power of the country continues buttressed by steady employment and high wages, and consumers' stocks are low.

Ingot Record Assured

Steel ingot production for September, amounting to 3,930,675 tons, was 1½ per cent under August but the best September on record save one. At 35,846,850 tons, production for the year to date is 2,000,000 tons ahead of 1925 and a rate of only 60 per cent—inconceivable under present conditions—would permit equalling of the 1925 record output. The daily average rate for September—151,180 tons—compares with the 1925 average of 141,930 tons.

Tonnage No Barometer

The extent to which buying for current requirements only has militated against unfilled tonnage of the Steel corporation as a barometer is emphasized by the statement for Sept. 30. Then the corporation had 3,593,509 tons on its books, an increase of 51,174 tons over Aug. 31 due in large measure to rail orders. In the face of a satisfactory operating rate and outlook, the backlog of the corporation at the end of September has been lighter only twice in its history.

Domestic makers of cast iron pipe will receive preferment on 11,000 tons for New York, the water department of that city advising against the acceptance of a lower foreign bid. Contrary to the experience of recent lettings, foreign competition did not appear at Detroit for 6500 tons.

Specify Rails Early

Two hundred thousand tons of rails have been placed on the books of Chicago mills, supplementing the 100,000 tons taken last week. The rail mill at Birmingham has closed on 100,000 tons. Recent orders include 66,000 tons by the Illinois Central, 23,000 by the Union Pacific, 18,000 by the Wabash and 16,000 by the Central of Georgia. The Northern Pacific is inquiring for 30,000 tons. Mindful of the delays in obtaining shipments against 1926 contracts, some western roads are already specifying against their 1927 orders. Freight car inquiry totals 10,000.

The structural steel market, featured more by large inquiry than heavy placement, has before it 11,500 tons for subway construction in New York and 10,000 tons for an auditorium at Atlantic City, N. J.

Deliveries on all classes of sheets are becoming

more deferred in spite of some let-up in demand from the automotive industry.

With Mahoning Valley pig iron producers now generally on an $18.50 base for foundry and malleable iron, Cleveland furnaces have advanced their prices 50 cents and are now quoting $20. Coal prices have risen to the point where coke oven operators cannot afford to take less than $3.75 and blast furnace operators are pressed to place their requirements.

IRON TRADE REVIEW composite of fourteen leading iron and steel products this week is $38.13, an advance of 28 cents over last week. For six consecutive weeks this indicator has risen.

Prices, Present and Past

Representative Market Figures for This Week, Last Month, Three Months and One Year Ago

	Oct. 13, 1926	Sept. 1926	July 1926	Oct. 1925
PIG IRON				
Bessemer, valley, del., Pittsburgh	$20.76	19.96	20.46	21.46
Basic, valley	18.00	17.30	17.50	18.70
Basic, eastern del., eastern Pa.	20.75	20.76	21.00	20.50
*No. 2 foundry, del., Pittsburgh	20.26	19.46	19.56	20.96
No. 2 foundry, Chicago	21.00	21.00	21.00	21.60
*Southern No. 2, Birmingham	20.00	20.80	21.00	19.50
*Southern Ohio, No. 2 Ironton	20.00	20.00	19.50	19.60
**No. 2X, Virginia furnace	22.75	23.00	22.75	23.00
**No. 2, eastern del., Phila.	22.51	22.26	22.26	22.61
Malleable, valley	18.50	17.70	17.80	19.20
Malleable, Chicago	21.00	21.00	21.00	21.60
Lake Superior charcoal, Chicago	27.04	29.04	29.04	29.04
Gray forge, val., del., Pittsburgh	19.76	19.11	19.11	20.46
Ferromanganese, del., Pittsburgh	99.79	92.79	92.79	119.79
*1.75 to 2.25 silicon. **2.25 to 2.75 silicon.				
COKE				
Connellsville furnace, ovens	3.40	3.25	2.65	5.65
Connellsville, foundry, ovens	4.50	4.15	3.70	5.95
SEMIFINISHED MATERIAL				
Sheet bars, open-hearth, Youngstown	36.00	36.00	36.00	35.00
Sheet bars, open-hearth, Pittsburgh	36.00	36.00	36.00	35.00
Billets, open-hearth, Pittsburgh	35.00	35.00	35.00	35.00
Wire rods, Pittsburgh	45.00	45.00	45.00	45.00
FINISHED MATERIAL				
Steel bars, Pittsburgh	2.00	2.00	2.00	2.00
Steel bars, Chicago	2.10	2.10	2.10	2.10
Steel bars, Philadelphia	2.32	2.27	2.32	2.27
Iron bars, Philadelphia	2.27	2.22	2.22	2.12
Iron bars, Chicago, mill	2.00	2.00	2.00	1.90
Beams, Pittsburgh	2.00	2.00	2.00	1.90
Beams, Philadelphia	2.27	2.22	2.32	2.17
Beams, Chicago	2.10	2.10	2.10	2.10
Tank plates, Pittsburgh	1.90	1.90	1.90	1.80
Tank plates, Philadelphia	2.22	2.22	2.22	2.02
Tank plates, Chicago	2.10	2.10	2.10	2.10
Sheets, black, No. 24, Pittsburgh	3.10	3.05	3.10	3.10
Sheets, blue anl., No. 10, Pittsburgh	2.40	2.30	2.30	2.25
Sheets, galvanized, No. 24, Pittsburgh	3.95	3.95	4.30	4.25
Sheets, black, No. 24, Chicago	3.20	3.15	3.25	3.35
Sheets, blue anl., No. 10, Chicago	2.50	2.45	2.45	2.45
Sheets, galvanized, No. 24, Chicago	4.05	4.00	4.45	4.45
Wire nails, Pittsburgh	2.65	2.65	2.65	2.65
Wire nails, Chicago	2.70	2.70	2.70	2.70
Tin plate per base box, Pittsburgh	$5.50	5.50	5.50	5.50
OLD MATERIAL				
Heavy melting steel, Pittsburgh	17.00	17.75	16.70	18.40
Heavy melting steel, eastern Pa.	16.75	16.85	15.50	17.00
Heavy melting steel, Chicago	13.00	14.10	14.20	16.25
No. 1 wrought, eastern Pa.	17.00	17.00	17.00	18.25
No. 1 wrought, Chicago	14.50	14.55	14.80	16.30
Rails for rolling, Chicago	16.50	17.25	17.10	18.55

Composite Market Average

The Fourteen Leading Iron and Steel Products Included are Pig Iron, Billets, Slabs, Sheet Bars, Wire Rods, Steel Bars, Plates, Structural Shapes, Black, Galvanized and Blue Annealed Sheets, Tin Plate, Wire Nails and Black Pipe

This week (Oct. 13, 1926)	$38.13
Last week (Oct. 6, 1926)	37.85
One month ago (September, 1926)	37.76
Three months ago (July, 1926)	37.68
One year ago, (October, 1925)	37.61
Ten years ago, (October, 1916)	41.50
Thirteen years ago, (October, 1913)	24.91

Late News Flashes

Chicago Ingot Rate Now 85

Chicago, Oct. 12.—Steel ingot production, after several weeks at 84 per cent, is now averaging 85. Wisconsin Steel Co. has blown in a stack, making 26 of the 36 steelworks blast furnace stacks here active.

Finishing Mills Over 90 Per Cent

Pittsburgh, Oct. 12.—Pipe, sheet and tin plate mills are averaging 90 per cent or better. Between 80 and 85 per cent still represents the steel ingot production in this district. Tonnage is coming in at a better rate than September on such products as bars, light rails, strip and sheets.

See No Banking Conflict in Steel

New York, Oct. 12.—A canvass of financial and industrial leaders is said to reveal the opinion that no conflict will arise between bankers supporting on the one hand the new European iron and steel producers' combination and on the other the larger domestic producers. The specialized lines through which American producers have much of their hold on export business are believed to be proof against competition by the new combination.

Valley Activity Is Maintained

Youngstown, Oct. 12.—Mill schedules in the Mahoning valley this week average between 85 and 90 per cent for the corporation and independent manufacturers. Open-hearth production at independent plants is on a slightly lower basis but the loss in tonnage is covered by the increase in bessemer output. Sheet mill schedules above 90 per cent of capacity are being maintained. Strip mills are operating full. Independent bar-making facilities are engaged at 75 per cent and those of the corporation 90 per cent. Plate mills are operating at 65 per cent and tin mills practically full.

Copper Export Body Is Approved

Washington, Oct. 12.—The federal trade commission has approved the formation of the copper exporting association which has been in process of organization for many months. As a result of this action, promotors of the organization have incorporated Copper Exporters, Inc., under Delaware laws ,to operate under the Webb-Pomerene act. Fully 90 per cent of the world output of copper is represented in the new organization, which is expected to stabilize the market for copper by eliminating speculation. C. F. Kelley, president, Anaconda Copper Mining Co., heads the new organization.

Current Rolled Steel Prices

PRICES, CENTS PER POUND, UNLESS OTHERWISE STATED

Semifinished Material

Prices per gross ton

BILLETS AND BLOOMS

4 x 4-inch base

Pittsburgh, open-hearth	$35.00
Pittsburgh, bessemer	35.00
Youngstown	35.00
Philadelphia	40.30
Chicago	35.00
Forging, Pittsburgh	40.00
Forging, Philadelphia	45.30

SHEET BARS

Pittsburgh	$36.00
Youngstown	36.00

SLABS

Pittsburgh	$35.00
Youngstown	35.00

WIRE RODS

Pittsburgh	45.00
Cleveland	45.00
Chicago	46.00

Standard extras, $5 for screw stock; $15 for acid wire rods. Carbon extras, $3 for 0.20 to 0.40; $5 for 0.41 to 0.55; $7.50 for 0.56 to 0.75; $10 over 0.75.

SKELP

Grooved skelp	1.90c
Universal skelp, Pittsburgh	1.90c
Sheared skelp, Pittsburgh	1.90c

Structural Shapes

Pittsburgh	2.00c to 2.10c
Philadelphia	2.17c to 2.32c
New York	2.19c to 2.34c
Chicago	2.10c
Cleveland	2.19c
Birmingham	2.15c to 2.25c

Steel Plates

Pittsburgh	1.90c
Philadelphia	2.22c
New York	2.24c
Chicago	2.10c
Cleveland	2.09c
Birmingham	2.05c to 2.15c

Iron and Steel Bars

Pittsburgh, soft steel	2.00c to 2.10c
Pittsburgh, cold finishing	2.15c
Pittsburgh, forging quality	2.15c
Philadelphia, soft steel	2.32c
New York, soft steel	2.34c
Chicago, soft steel	2.10c
Cleveland, soft steel	2.19c
Birmingham, soft steel	2.15c to 2.25c
San Francisco, soft steel	2.60c
Pittsburgh, refined iron	3.00c to 4.50c
Pittsburgh, reinforcing billet	2.00c to 2.10c
Youngstown, reinf. billet, base	1.90c to 2.00c
Chicago, rail steel	2.00c
Mill, rail steel	1.80c
Philadelphia, common iron	2.22c to 2.32c
New York, common iron	2.24c to 2.34c
Chicago, common iron	2.00c

Hoops, Bands, Strips

Hoops, Pittsburgh, 6 inches and under	2.50c
Bands, Pittsburgh, 6 inches and under	2.50c
Bands, Pittsburgh over 6 in.	2.30c
Hot rolled strip steel, Pittsburgh, stamping quality, over 6 in.	2.30c
Hot rolled strip steel, Chicago	2.50c to 2.60c
Bands, Chicago, under 6 inches	2.60c
Bands, Chicago, 6 in. and over	2.50c
Cold rolled strip steel, hard coils, 1½ inches and wider by 0.100-inch and heavier, base, Pittsburgh	3.50c to 3.60c
Worcester Mass	3.90c
Chicago	3.90c to 4.05c

Cold Finished Steel

Cold finished steel bars, drawn, or rolled, Pittsburgh, Chicago carloads	2.50c
Less carload	2.75c
Steel shafting turned and polished Pittsburgh, Chicago	2.60c

Screw stock base Cleveland $1 higher than Pittsburgh and Chicago.

Hot Rolled Alloy Steel

Pittsburgh or Chicago

S. A. E. Series—

2300 (3½ per cent nickel	4.40c to 4.50c
3100 (Nickel chromium)	3.40c to 3.50c
6100 (Chrome vanadium)	4.25c to 4.30c
6100 (Chrome vanad. spring)	3.85c
9250 Silico-mang. spring)	3.25c

Rails, Track Material

Standard bessemer rails, mill	$43.00
Standard open-h'th rails, mill	43.00
Relaying rails, St. Louis	24.00 to 31.00
Relaying rails, Pittsburgh	23.00 to 25.00
Light rails, 25 to 45, mills	36.00
Angle bars, Chicago base	2.75c
Spikes, railroad, Pittsburgh	2.80c to 2.90c
Spikes, small railroad, 7-16-inch and smaller, Pitts	2.90c to 3.00c
Spikes, boat and barge, Pitts.	3.10c
Spikes, railroad, Chicago	2.90c
Track bolts, Pitts. standard	3.90c to 4.25c
Track bolts, Chicago	3.90c
Tie plates, Chicago	2.35c
Tie plates, Pittsburgh	2.35c

Wire Products

To Jobbers in Carloads

Dealers 5 cents per 100 pounds extra F.o.b. Cleveland and Pittsburgh base.

Wire nails	2.65c
Galvanized nails smaller than 1-inch	4.90c
Galv'd nails, 1-inch and over	4.65c
Plain wire	2.50c
Annealed wire	2.65c
Galvanized wire No. 9 gage	3.10c
Barbed wire, painted	3.10c
Barbed wire, galvanized	3.35c
Polished staples	3.10c
Galvanized staples	3.35c

Coated nails, 100 pound kegs, subject to card of extras Sept. 1, 1926, over regular wire nail base.

Woven wire fencing (retailers) 12½ gage, 26-in. high 7-in. bars and 12-in. stays, per 100 rods, f.o.b. Pitts.... $20.03

Joliet, DeKalb and Waukegan, Ill., and Anderson, Ind., prices $1 per ton over Cleveland-Pittsburgh base on products made there; Duluth $2 higher, Worcester, Mass., and Fairfield, Ala., $3 higher.

Sheets

SHEET MILL BLACK

No. 24, Pittsburgh, base	3.10c
No. 24, Philadelphia, delivered	3.32c to 3.42c
No. 24, Gary, Indiana Harbor	3.20c
No. 24, Chicago, delivered	3.25c

TIN MILL, BLACK

No. 28, Pittsburgh	3.25c
No. 28, Gary base	3.35c

GALVANIZED

No. 24, Pittsburgh, base	3.95c
No. 24, Philadelphia, delivered	4.17c to 4.27c
No. 24, Gary, Indiana Harbor	4.05c
No. 24, Chicago, delivered	4.10c

BLUE ANNEALED

No. 10, Pittsburgh, base	2.40c
No. 10, Philadelphia, delivered	2.62c to 2.72c
No. 10, Gary, Indiana Harbor	2.50c
No. 10, Chicago, delivered	2.55c

AUTOMOBILE SHEETS

No. 20, Pittsburgh, base	4.25c

Tin and Terne Plate

Prices per 100-pound box, Pittsburgh

*Tin plate, coke base	$5.50

Gary, Ind., base 10 cents higher.

Long ternes, base	4.65

*This price is subject to quantity differentials established by individual regulations.

Iron and Steel Pipe

Base Discounts Pittsburgh and Lorain, O. to Jobbers in Carloads

	Black	Galv.
1 to 3-inch butt steel	62	50½
1 to 1½-inch, butt iron	30	13

Indiana Harbor, Ind., and Evanston, Ill., 2 points less and $4 per ton higher. Chicago delivered 2½ points less and $5 per ton higher.

Boiler Tubes

Less Carload Discounts—Carloads 4 Points Additional—F.o.b. Pittsburgh Mills

Steel 3¼ to 3¾-inch	68½
Charcoal iron, 3¼ to 4½-inch	5
Seamless hot rolled 3¼ to 3½-inch	46 off

Additional discounts of seven 5 per cents being allowed for carloads and six 5 per cents for less-carload, on Japanned steel. On seamless hot rolled several additional 5 per cents are allowed.

Chain, Piling, Cut Nails

Chain, 1-in. proof coil, Pitts.	6.00c
Sheet piling base, Pittsburgh	2.25c to 2.30c
Cut nails, c. l., f.o.b. mills	2.80c

Cast Iron Water Pipe

Prices per net ton

Class B Pipe

Four-inch, Chicago	$51.20 to 52.20
Six-inch to 24-inch, Chicago	47.20 to 49.20
Over 24-inch, Chicago	45.20
Four-inch, Birmingham	43.00 to 44.00
Six-inch and over, Birming'm	39.00 to 40.00
Four-inch, New York	56.50 to 57.60
Six-inch and over, New York	51.50 to 52.60
Standard fittings, Birmingham base	$110.00

6 to 24-inch, base; over 24-inch, plus $20; 4-inch, plus $20; 3-inch, plus $20; gas pipe fittings, $5 higher.

Class A pipe is $5 higher than Class B

Nuts and Bolts

F.o.b. basing points, Pittsburgh, Cleveland, Birmingham and Chicago.

Hot pressed square tapped or blank	$4.00 off list
Hot pressed hexagon tapped or blank	$4.40 off list
Cold punched square or hexagon blank	$4.10 off list
Cold punched square or hexagon tapped or blank	$4.10 off list
Cold punched U. S. S. semifinished hexagon nuts ⅝-inch and larger	75, 10 and 5 off
Cold punched U. S. S. semifinished hexagon nuts 9/16-inch and smaller	80, 10 and 5 off
Cold finished S. A. E. semifinished ⅝-inch and larger	75, 10, 10 and 5 off
Cold finished S. A. E. semifinished 9/16-inch and smaller	80, 10, 10 and 5 off

CARRIAGE BOLTS

(¾ x 6-inch, smaller and shorter)

Rolled thread	50, 10 and 10 off
Cut thread (all sizes)	50 and 10 off
Eagle carriage bolts (Eagle list)	65 and 10 off

MACHINE BOLTS

(⅜ x 4-inch, hot pressed nuts)

Rolled thread	60 and 10 off
Cut thread	45, 10 and 5 off

(All sizes cold punched nuts)

Cut thread	45 10 and 5 off
Lag screws	60, 10 and 10 off
Plow bolts Nos. 3 and 7 heads	50 and 10 off
All other standard heads	50 and 10 off plus 20 per cent
Tap bolts	30 off
Bolt ends with hot pressed nuts	50, 10 and 10 off
Bolt ends with cold punched nuts	45, 10 and 5 off
Blank bolts	50, 10 and 10 off
Rough stud bolts with nuts (250 pieces or more of a size)	40 and 10 off

Stove bolts, 80, 10 and 5 off in bulk. In packages, 80, 10 and 5 plus 2½ off.

Tire bolts	60 and 5 off

SEMIFINISHED CASTELLATED AND SLOTTED NUTS

Per 1000, f.o.b. producer's plant, freight allowed

	S.A.E. Castellated	U.S.S. Slotted
¼	$ 4.40	$ 4.40
5/16	5.15	5.15
⅜	6.20	6.60
7/16	7.90	9.00
½	10.10	10.50
9/16	13.80	14.20
⅝	17.00	17.30
¾	28.50	24.00
⅞	36.00	36.00
1	55.50	58.00
1⅛	89.00	89.00
1¼	126.00	131.00
1⅜	183.50	183.50
1½	210.00	210.00

Larger sizes—Prices on application

HEXAGON CAP SCREWS

Milled	80 and 10 off
Upset	80, 10 and 10 off

SQUARE HEAD SET SCREWS

Milled	80 and 5 off
Upset	80, 10 and 5 off

Rivets

Structural rivets, carloads, Pittsburgh and Cleveland	2.50c to 2.60c
Structural rivets, carloads, Chicago	2.60c to 2.75c

**Rivets, 7/16-inch and smaller, Pittsburgh, Cleveland, 70, 10 and 5 to 70 and 10 off.

**Rivets, 7/16-inch and smaller, Chicago 70, 10 and 5 to 70 and 10 off

**Some makers quoting 70 off with freight allowed on 300 pounds or more.

Washers

Wrought c.l., Chicago dist	$6.40 to 6.50 off
Wrought c.l., Pitts. dist	6.75 off
Lock washers, f.o.b. factory	85 to 90 off

Pig Iron

Valley and Cleveland Markets Are Stronger —Inquiry for First Quarter More General— Basic Sales in East

FURTHER evidence of strength in the valley pig iron market is noted, practically all makers now quoting $18.50, base, on foundry and malleable. Following this lead, Cleveland furnaces advanced their prices 50 cents, quoting $20, base, for delivery in the local territory, and $18.50 for delivery outside. These new prices have not been tested. A feature of the eastern market is a reported large sale of foundry iron for delivery from the Port Henry furnace to Trenton, N. J., taking a freight rate of $3.64. Heavy sales of basic and low phosphorus iron are noted in eastern territory. About 10 per cent of first quarter requirements in the New York district are covered. General inquiry pending for that period totals 15,000 tons.

PITTSBURGH, Oct. 12.—New inquiries for pig iron are lacking, although shipping rates are well sustained, indicating a large amount of quiet buying in recent weeks. Quotations are maintaining their strength and tending higher, due primarily to the influence of fuel costs. A Muncie, Ind., user purchased 3500 tons of malleable, valley furnaces losing out because of a $1 freight differential. The Warren Tool & Forge Co. purchased a small quantity of malleable at $18.50, valley. Other inquiries from Ohio and Indiana involve 500 to 750 tons, but inquiries originating nearby are much smaller. A price of $18.50 now is quoted on malleable and No. 2 foundry iron. Two hundred tons of No. 1 foundry was sold at $19.50, valley. The largest valley sale of bessemer this week was 200 tons at $19. A Pennsylvania steel interest sold approximately 2200 tons of bessemer at $19, furnace, for delivery at the rate of a carload every other day. The basic market is not tested; all makers are quoting $18, valley.

Boston, Oct. 12.—The pig iron market in the East is gathering strength. Several large consumers have been in the market for first quarter, and inquiry is active. The General Fire Extinguisher Co., Providence, R. I., bought 2000 tons. A Massachusetts consumer took 500 tons for November, December and January. Prices in all producing districts are firm. The Mystic Iron Works is shipping iron from its new furnace.

Philadelphia, Oct. 12.—Heavy buying featured basic and low phosphorus pig iron in the past week. An advance has been announced by one maker of copper bearing, low-phosphorus, making this grade $24, furnace. The minimum price of copper free, low-phosphorus now is $24.76, delivered at Philadelphia. The most spectacular development is the reported sale of a large tonnage of Port Henry, N. Y., foundry for delivery to Trenton, Port Henry freight to Trenton is $3.64. Foundry demand here is light. Makers generally are quoting $21.50, base, furnace, but $21 has not yet disappeared. The Washington navy yard is inquiring for 650 tons of foundry iron.

New York, Oct. 12.—Buying of pig iron in this territory in the past week aggregated a little more than 15,000 tons. The General Fire Extinguisher Co., Providence, R. I., took 2000 tons of foundry iron. Current inquiry is not large. The only important requirements now before the trade are those of the Worthington Pump & Machinery Corp., which is in the market for about 3500 tons for its plants at Harrison, Buffalo, East Cambridge, Holyoke and Elmwood Place. It is estimated that about 10 per cent of the trade in this territory have bought their requirements of pig iron over the first quarter of next year, mainly small interests. The market on eastern Pennsylvania foundry iron seems firm at $21.50 base, furnace. Buffalo foundry for shipment to this territory, continues $19, base, furnace.

Pig Iron Prices

Prices per gross ton

Bessemer, valley	$19.00
Bessemer, Pittsburgh	20.76
Basic, valley	18.00
Basic, Pittsburgh	19.76
Basic, Buffalo	19.00 to 19.50
Basic, del., eastern Pa.	20.75 to 21.25
Malleable, valley	18.50
Malleable, Pittsburgh	20.26
Malleable, del., Cleveland	20.00
Malleable, Chicago	21.00
Malleable, Buffalo	19.00 to 20.00
Malleable, del., eastern Pa.	22.25 to 22.75
No. IX, Eastern del., Phila.	22.76 to 23.89
No. IX, Buffalo	20.50 to 21.00
No. 1 foundry, Chicago	21.50
No. 2 foundry, valley	18.50
No. 2 foundry, Pittsburgh	20.26
No. 2 foundry, Buffalo	19.00 to 20.00
No. 2 foundry, Chicago	21.00
No. 2 foundry, Granite City	22.00 to 22.50
No. 2 foundry, Ironton	20.00
No. 2 foundry, del., Cleveland	20.00
No. 2 foundry, del., Phila.	21.76 to 23.39
No. 2 foundry, N. J., tidewater	22.39 to 23.26
No. 2X, eastern del., Phila	22.26 to 23.89
No. 2X, east N. J., tidewater	22.89 to 23.76
No. 2X, foundry, Buffalo	20.00 to 20.50
No. 2X, eastern del., Boston	24.65 to 25.65
No. 2X, Buffalo, del., Boston	23.91 to 24.41
Continental foundry f.o.b. Boston	20.00 to 21.00
India, 2.25 to 2.75 silicon, delivered cars, Boston	21.00 to 21.50
No. 2 Alabama, Birmingham	20.00
No. 2 Alabama, del. Cincinnati	23.69
No. 2 Tenn., Birmingham	21.00
No. 2 Tenn., del. Cincinnati	23.69
No. 2 Alabama, del. Philadelphia	26.01
No. 2 Alabama, del. Chicago	26.01
No. 2 Alabama, del Chicago (barge and rail)	25.18
No. 2 Alabama, del. Boston (rail and water)	26.81
No. 2 Alabama, del. Cleveland	26.01
No. 2 Alabama, del. St. Louis	24.42
No. 2X, Virginia	22.50 to 23.25
No. 2X, Virginia, Phila	27.67 to 28.42
No. 2X, Virginia, del Jers. City	28.04 to 28.79
No. 2X, Virginia, del. Boston	28.42 to 29.17
Gray forge, eastern Pa.	20.75 to 21.25
Gray forge, val. del. Pitts.	19.76
Low phos., standard, valley	28.00
Low phos., standard, Phila	24.76
Low phos., Lebanon	24.00
*Low phos., English (nominal)	24.01 to 24.51
Charcoal, Birmingham	29.00 to 30.00
Charcoal, Superior, Chicago	27.04

Silvery iron Jackson county, Ohio furnace, 5 per cent $24.50; 6 per cent $25.50; 7 per cent $26.50; 8 per cent $27.50; 9 per cent $29.00; 10 per cent $31.00; 11 per cent $33.00; 12 per cent $35.00; 13 per cent $37.00; and 14 per cent $39.00.

Bessemer ferrosilicon, Jackson county, Ohio, furnace, 10 per cent $33.00; 11 per cent $35.00; 12 per cent $37.00; 13 per cent $39.00; 14 per cent $41.00; 15 per cent $44.00; 16 per cent $46.00; 17 per cent $48.50.

*Duty paid, delivered Philadelphia consumers. Prices are f.o.b. furnace except where stated otherwise.

Buffalo, Oct. 12.—New inquiry for pig iron totals 10,000 to 12,000 tons. One is for 3000 tons of foundry and malleable. The Kensington-Davis Co. covered part of 2000 tons in Buffalo, and may buy additional tonnage. Less pressure from outside competitors is noted by Buffalo makers. The price is firm at $20 on Buffalo business. Fifteen furnaces are in operation and six are idle.

Cleveland, Oct. 12.—Moderate activity is noted in the pig iron market. The aggregate of sales closed by furnace interests with headquarters here, during the week, was 30,000 tons, about 20,000 tons less than in the week preceding. Inquiry for first quarter totals 12,000 to 15,000 tons. Increasing strength in the fuel market, and the outlook for the next quarter, is leading furnace interests to adopt a bullish attitude, especially those who have good backlogs. Cleveland makers have advanced their asking price 50 cents to $19.50, furnace, for delivery in the 50-cent switching area of Cleveland, and have made a similar advance on outside business, quoting $18.50, base furnace. These new prices have not been tested. The valley market is firmer, $18.50, base, furnace, being the more general asking price. Other lake furnaces continue to quote $19 to $19.50, base, furnace, for delivery in western Ohio, Indiana and Michigan.

St. Louis, Oct. 12.—Pig iron had a dull week, with sales amounting to 700 to 800 tons. The only inquiry of note is from an upper Illinois manufacturer for 1000 tons of malleable. The quotation of Chicago makers is unchanged at $21, f.o.b. furnace, but sales are being made in this territory at $1 under that figure. They are met by the Granite City, Ill., furnace, whose nominal quotation is $22 to $22.50, f.o.b.

Chicago, Oct. 12.—More inquiry is

(*Concluded on Page* 1017)

Coke

Prices Stronger as Coal Demand Increases—Some Operators Reducing Output Slightly

COKE prices are showing a slow but steady advance, due mainly to increasing demand for coal for export and domestic purposes. In the Connellsville district coke output has been curtailed slightly by operators preferring to sell their coal. The minimum on spot tonnages of well-known furnace coke brands is $3.75. Foundry fuel also is stronger.

Pittsburgh, Oct. 12.—Barrenness in the beehive coke market is becoming accentuated, with 50 additional ovens becoming idle in two different directions. Operators are preferring to ship coal at $2.50 to $3, equivalent to $3.75 and higher for coke, without the expense of making the coke. Coal demand is holding up well and militates against accumulations of coke by blast furnace consumers. One valley stack purchased a small portion of its requirements at $3.50 and is having difficulty in locating the remainder of its needs. It hopes to blow in a stack before Dec. 1 to make low phosphorus pig iron. Others wanting coke for extended delivery are meeting with quotations of $3.75 to $4. They include eastern gas producers. One block of 30 to 40 carloads was sold in the spot market at $3.75 and that figure represents the minimum for well-known brands. Other sales of smaller proportions are noted at $3.40 and higher. Medium sulphur coke is $3 to $3.10. Foundry coke is showing additional strength. Two users wanting to contract through the remainder of the year were quoted $5 and $5.25 on high-grade coke, and $4.50 to $5 elsewhere.

Production of coke in the Connellsville region for the week ended Oct. 2 was 149,780 tons, against 140,690 tons the preceding week, according to the *Connellsville Courier*.

New York, Oct. 12.—Now that the coke market is much stronger, demand also is much better. There has been considerable buying at the higher prices in the past week. The prices now being paid are $5 to $5.25 Connellsville, for spot beehive foundry coke, and $3.75 to $4 for spot beehive furnace coke. On beehive furnace coke for shipment over the remainder of this year $4 to $4.50 are being paid. There is no change in prices on by-product foundry coke, which are $9.59 to $10.77, delivered at Newark and other northern New Jersey consuming points. By-product foundry coke is not much of a factor in the spot market, the output being sold up for at least a month ahead.

Boston, Oct. 12.—Improving sales of domestic coke have stiffened the foundry fuel situation. Local by-product producers hold to the $12 delivered price for the foundry grade under contract. Spot by-product fuel is offered at $12.25 to $12.50, and sales of beehive coke are reported in Connecticut at $12, delivered.

St. Louis, Oct. 12.—Demand for foundry coke continues heavy. Prices are firm.

Birmingham, Ala., Oct. 12.—Recent contracts for coke are substantial. Quotations are firm at $5.50 for the foundry grade, with $6 for spot delivery. The Alabama By-Product Corp. will build an addition of 49 ovens to its plant here, the ovens to be larger than its 100 now in operation.

Coke Prices

Beehive, Ovens

Prices per net ton

Connellsville furnace	3.40 to 4.00
Connellsville foundry	4.50 to 5.25
New River foundry	6.50 to 7.00
New River furnace	4.50 to 5.00
Wise county furnace	4.00
Wise county foundry	4.50 to 5.00
Alabama foundry	4.50 to 5.50

By-Product

Foundry, Newark, N. J.; del.	$9.59 to 10.77
Foundry, Chicago, ovens	9.75
Foundry, New England, del.	12.00
Foundry, St. Louis	10.00
Foundry, Granite City, Ill.	10.00
Foundry, Birmingham	5.50 to 6.00
Foundry, Indianapolis, del.	10.25
Foundry, Ashland, Ky.	7.50
Foundry, Portsmouth, O.	7.00

Ferroalloys

More Spot Cars of Spiegeleisen Are Sought at New York

New York, Oct. 12.—More spot buying features the spiegeleisen market, this business aggregating a number of carloads a week. In most cases the price is $34, furnace, for the 19 to 21 per cent grade. It is expected that contracts will come up for renewal around Nov. 1. While specifications on current contracts are good, there have been few instances where consumers have called for tonnages above their contract commitments, so that spot buying is coming from the users which did not contract. The New Jersey Zinc Co. now is operating two furnaces on spiegeleisen.

Occasional carloads for prompt shipment comprise the current business in ferromanganese. Consumers generally continue to supply their requirements from shipments on contracts. There has been on curtailment of such shipments, as consumption continues at a high rate. The market continues $88 to $95, duty paid tidewater.

Special ferroalloys are moving in large quantities and prices are unchanged. Ferrotungsten has sold close to $1.05 a pound contained. Some asking prices are a little higher, but some prices also have been heard lower. Other alloys are going almost entirely on contracts. Tungsten ore is mostly $10.65 to $10.75 a short ton unit, little changed but with a firm undertone. The exact situation in China is not clear but this country is not yet short on fulfillment of any contracts.

Pittsburgh, Oct. 12.—Specifications for ferromanganese are numerous, indicating a sustained consuming rate. A few less-than-carload sales brought $123.50 in the past week. The English price on carloads or more is unchanged at $100, and domestic makers still quote $95. Buyers believe that $90 would be accepted on large tonnage orders but apparently none is yet ready to negotiate for 1927. The Follansbee Bros. Co. wants another carload of 12 to 14 per cent ferrosilicon, but no new orders are noted for the 50 per cent grade. Specifications for 50 per cent grade are heavier in the last half than they were in the first. Spiegeleisen is unchanged, with an occasional single carload sold in the spot market. Large tonnages of material are being taken out on contracts.

Drawback Is Extended

Washington, Oct. 12.—The Anniston, Bessemer and Birmingham, Ala., and Chattanooga, Tenn., plants of the United States Cast Iron Pipe & Foundry Co. will also benefit by the ruling of the treasury department, issued sometime ago with reference to the company's Burlington, N. Y., plant, that a drawback is to be paid on castings manufactured from foreign pig iron.

Until 1883 all cut nails manufactured in this country were of iron but in that year bessemer steel began to be used.

In 1883 steel wire nails began to come into use as a substitute for cut nails.

Ferroalloy Prices

†Ferromanganese 78 to 82 per cent, tidewater, or furnace first hand and resales	$95.00 to 100.00
Ferromanganese delivered Pittsburgh	99.79 to 104.79
Spiegeleisen 19 to 21 per cent domestic furnace or tidewater	32.00 to 34.00
Ferrosilicon, 50 per cent freight allowed	85.00 to 87.50
Ferrotungsten standard, per pound contained	1.00 to 1.05
Ferrochrome, 60 to 70 chromium, 6 to 8 carbon, cents per pound contained, delivered	11.00 to 11.50
Ferrovanadium, 30 to 40 per cent per pound estimated, according to analysis	3.25 to 4.00
Ferro-carbon-titanium, car lots, producer's plant, net ton	200.00
Ferrophosphorus, per ton, carload, 17 to 19 per cent, Rockdale, Tenn., basis (18 per cent material)	91.00
Ferrophosphorus, electrolytic, per ton, carload, 23 to 25 per cent, f.o.b. Anniston, Ala., (24 per cent materials)	122.50

†Duty paid.

Plates

Miscellaneous Demands Continue Fairly Heavy—Tonnage So Far Exceeding September's

CURRENT plate demand consists mainly of moderate size tonnages for miscellaneous purposes. Great Lakes shipyards will need a considerable tonnage for winter repair work. Some leading mills report finished material orders, including plates, so far this month are 50 per cent ahead of the comparable period in September.

PLATE PRICES, PAGE 1002

Pittsburgh, Oct. 12.—Plate fabricators, boiler shops and other users of steel plate are keeping up a steady demand on mills, although individual orders are not large. The delivery situation is much more favorable than in bars or shapes. The outlook for plate tonnage for river craft for next season is good. The price is 1.90c.

Boston, Oct. 12.—Plate prices firmly withstand consumers pressure for lower levels. Sales on a piecemeal basis in carload lots and less show a good total volume. Nothing below 1.90c, Pittsburgh, or 2.365c, delivered, has come to light at Boston.

New York, Oct. 12.—East Jersey Pipe Co. will fabricate about 1000 tons of steel plate into pipe to be laid in a line at Kearney, N. J., by the Spiniello Construction Co., Newark. Kearney now is preparing to advertise for bids for a second pipe line, bids probably to close Oct. 27.

Philadelphia, Oct. 12.—Plate bookings generally are not as large as some weeks ago, but continue fair. The price is firm at 1.90c, Pittsburgh.

Inquiries are out for 5200 tons of plates for a tanker and 1000 tons for a dredge.

Cleveland, Oct. 12.—Lower lake shipyards will need a round tonnage of plates for winter repair work. Reports from the mills indicate no change in the situation. Some sellers detect an easier situation in buying, but neither production nor consumption has moved. Plates are unchanged at 1.90c, Pittsburgh, or 2.09c, Cleveland.

Chicago, Oct. 12.—Demand from the oil fields for tankage is contributing to activity in plates, in the absence of well defined car building programs. Tank builders placed orders for nearly 15,000 tons of plates in the district within the past week. Inquiries from tank users are for 20,000 to 30,000 tons, not including 5000 to 10,000 tons from California oil fields. The Cities Service Tank line is dividing 60 tank cars between the American Car & Foundry Co. and the General American Tank Car Corp., and Chicago & North Western has ordered 500 stock car bodies from the Illinois Car & Mfg. Co.

CONTRACTS PLACED

3000 tons, ten 80,000-barrel tanks for the Marland Refining Co. in the Panhandle, Texas, district, to Chicago Bridge & Iron Works.

400 tons, sand digger hull for the E. T. Slider Co., New Albany, Ind., to Midland Barge Co.

296 tons, garage, Evanston, Ill.; to Concrete Engineering Co.

200 tons, plate span for the New York, New Haven & Hartford railroad at Boston, to Phoenix Bridge Co.

Furnace Is Blown with Centrifugal Units

Two 45,000 cubic foot blast furnace blowers recently were installed as part of the equipment of the Mystic Iron Works, Everett, Mass. Each of the blower units, which were built by the General Electric Co., Schenectady, N. Y., consist of a 3-stage, water-jacketed blower with radial flow impellers capable of delivering any volume up to 45,000 cubic feet of air at pressures up to 30 pounds. The drivers are 8-stage condensing turbines with multiple-valve control. Each turbine is equipped with the usual emergency and speed governors, the latter acting as a pre-emergency governor without shutting down the unit. In ordinary service, however, the blower is controlled by the new General Electric constant volume governor.

Other centrifugal compressors to be placed in operation within the next few weeks include two 45,000-cubic foot, 35-pound bessemer-converter blowers at the Woodlawn plant of the Jones & Laughlin Steel Corp.; two 50,000-cubic foot blast-furnace blowers at the Central Furnace Co., Massillon, O.; one 60,000-cubic foot unit the the National Tube Co., Lorain, O.; one 45,000-cubic foot unit at the Perry Iron Co., Erie, Pa.; and, one 35,000-cubic foot unit at the Bourne-Fuller Co., Cleveland.

Postpones Merger Case

Washington, Oct. 12.—The taking of further testimony in New York by the federal trade commission in its Lackawanna-Midvale Merger case against the Bethlehem Steel Corp. has again been postponed from Oct. 5, the last date set, to some date, not yet fixed, about Oct. 15.

Semifinished

Market Is Firm—Forging Billets Tending Upward—Inquiry More Active

SPECIFICATIONS on contracts, and new orders for semifinished steel, continue in satisfactory volume. Some sheetmakers are placing additional tonnages of sheet bars, and there are more inquiries for billets and slabs principally from strip steel manufacturers. Prices are firm. Some producers of forging billets are trying to obtain more than $40.

SEMIFINISHED STEEL PRICES, PAGE 1002

New York, Oct. 12.—Fewer consumers than usual are under contract for their requirements of semifinished steel. Many consumers did contract for fourth quarter, but larger interests are following the hand-to-mouth policy. The market on wire rods is firm at $45, base, Pittsburgh.

Pittsburgh, Oct. 12.—Semifinished steel activity is more pronounced. More inquiries and additional specifications have developed for billets and slabs. Inquiries are for monthly requirements of strip steelmakers and other users. One make of blue annealed sheets wants a tonnage of slabs. The price is $35. Forging billets specifications against contracts at $40 are calling for interesting tonnages, indicating sustained activity among makers of forgings and oil well tools. Some billet makers are endeavoring to obtain slightly more than $40. Sheet bar users are under cover for the last quarter, except those who are contracting for only one month's supply at a time. The price on sheet and tin bars is $36. Wire rods are fairly active at $45 but skelp, outside of a few contracts, is entirely inactive. The price of skelp is firm at 1.90c.

Youngstown, Oct. 12.—While the recent pickup in the volume of sheet sales has necessitated enlargement of sheet bar specifications, consumers are well covered for this quarter. The tonnage coming to the mills largely is composed of sheet bar specifications and $36, Youngstown, is applying. Standard billets and slabs are quoted at $35 Youngstown. Little tonnage of this commodity is reaching the market.

Cleveland, Oct. 12.—Some additional fair-size orders for semifinished steel have been booked by the leading merchant mill here. The market is firm at $36, Cleveland or Youngstown, for sheet bars, and $35 for standard billets and slabs. Specifications on contracts continue to provide this maker with practically full operations.

Iron and Steel Scrap Prices

Corrected to Tuesday noon. Gross Tons Delivered to Consumer

Steel Works Scrap

HEAVY MELTING STEEL	
Birmingham	13.00 to 13.50
Boston (dealers)	11.00 to 11.50
Buffalo, No. 1	17.25 to 17.50
Buffalo, No. 2	15.75 to 16.25
Chicago	13.00 to 13.50
Cincinnati (dealers)	13.50 to 14.00
Cleveland, No. 1	15.50 to 15.75
Cleveland, No. 2	14.50 to 14.75
Detroit	12.75 to 13.25
Eastern Pennsylvania	16.50 to 17.00
Bethlehem delivery	15.50 to 16.00
New York (dealers) (yard)	10.50 to 11.00
Pittsburgh	17.00 to 17.50
St. Louis	13.25 to 13.75
Valleys, No. 1	17.50

COMPRESSED SHEETS	
Buffalo	14.75 to 15.25
Chicago	11.50 to 12.00
Cleveland	14.00 to 14.50
Detroit	11.00 to 11.50
Pittsburgh	15.50 to 16.00
Valleys	17.50

BUNDLED SHEETS	
Buffalo	11.00 to 11.50
Cincinnati (dealers)	9.50 to 10.00
Cleveland	12.50 to 13.00
Eastern Pennsylvania	13.00 to 13.50
Pittsburgh	14.50 to 15.00
St. Louis	8.50 to 9.00

SHEET CLIPPINGS, LOOSE	
Chicago	8.25 to 8.75
Cincinnati	7.00 to 7.50
Detroit	6.75 to 7.25
St. Louis	9.00 to 9.50

STEEL RAILS, SHORT	
Birmingham	13.00 to 14.00
Buffalo	17.25 to 17.75
Chicago	16.75 to 17.00
Cincinnati (dealers)	18.00 to 18.50
Cleveland (over 6 ft.)	15.50 to 16.00
Detroit	15.50 to 16.00
St. Louis	16.50 to 17.00

STOVE PLATE	
Birmingham	14.00 to 14.50
Boston (consumers)	13.50 to 14.00
Buffalo	15.00 to 15.50
Chicago (net)	14.00 to 14.50
Cincinnati (dealers) (net)	9.50 to 10.00
Cleveland	13.00 to 13.50
Detroit (net tons)	12.50 to 13.00
Eastern Pennsylvania	13.50 to 14.00
New York (dealers)	10.00 to 11.25
Pittsburgh	13.00 to 13.50
St. Louis	14.50 to 15.00

LOW PHOSPHORUS	
Buffalo, billet and bloom crops	18.50 to 19.00
Cincinnati (dealers)	16.50 to 17.00
Eastern Pennsylvania	21.00 to 22.00
Pitts. billet and bloom crops	20.00 to 20.50
Cleveland, billet and bloom crops	19.00 to 19.50

SHOVELING STEEL	
Chicago	13.00 to 13.50
Pittsburgh	12.50 to 13.00
St. Louis	13.25 to 13.75

KNUCKLES, COUPLERS, SPRINGS	
Chicago	16.50 to 16.75
Eastern Pennsylvania	18.50 to 19.00
Pittsburgh	18.50 to 19.00
St. Louis	14.50 to 15.00

FROGS, SWITCHES, GUARDS	
Chicago	15.25 to 15.75
Eastern Pennsylvania	12.00 to 12.50
St. Louis	15.00 to 15.25

ANGLE BARS—STEEL	
Buffalo	16.50 to 17.00
Chicago	15.25 to 15.75
St. Louis	14.50 to 15.00

Iron Mill Scrap

RAILROAD WROUGHT	
Birmingham	$12.00 to 13.00
Boston (dealers)	11.50 to 12.00
Buffalo, No. 1	13.50 to 14.00
Buffalo, No. 2	15.50 to 16.00
Chicago, No. 1	14.50 to 15.00
Chicago, No. 2	13.00 to 13.50
Cincinnati, No. 1 (dealers)	11.50 to 12.00
Cleveland, No. 1	12.50 to 13.00
Eastern Pennsylvania	17.00 to 17.50
New York, No. 1 (dealers)	14.50 to 15.00
Pittsburgh, No. 1	13.50 to 14.00
Pittsburgh, No. 2	17.00 to 17.50
St. Louis, No. 1	13.50 to 14.00
St. Louis, No. 2	13.25 to 13.75

WROUGHT PIPE	
Boston (dealers)	10.00 to 10.50
Eastern Pennsylvania	14.50 to 15.00
Buffalo	15.00 to 15.50
New York (dealers)	9.75 to 10.25

YARD WROUGHT	
Boston	12.00 to 12.50
Eastern Pennsylvania	16.50 to 17.00

BUSHELING	
Buffalo	16.00 to 16.50
Chicago, No. 1	11.75 to 12.25
Chicago, No. 2	8.50 to 9.00
Cincinnati, No. 1 (dealers)	8.00 to 8.50
Cleveland No. 1	11.75 to 12.00
Cleveland, No. 2	11.50 to 11.75
Pittsburgh, No. 1	14.50 to 15.00
St. Louis, No. 1	11.50 to 12.00

MACHINE SHOP TURNINGS	
Birmingham	8.00 to 8.50
Boston	8.00 to 8.50
Buffalo	10.75 to 11.25
Chicago	7.50 to 8.00
Cincinnati (dealers)	6.50 to 7.00
Cleveland	11.00 to 11.50
Detroit	8.75 to 9.25
Eastern Pennsylvania	13.00 to 13.50
New York (dealers)	9.00 to 9.50
Pittsburgh	12.00 to 12.50
St. Louis	8.00 to 8.50

CAST IRON BORINGS	
Birmingham (chemical)	15.50 to 16.50
Birmingham (plain)	8.00 to 8.50
Boston (chemical)	10.50 to 11.00
Boston (dealers)	8.50 to 9.00
Buffalo	12.00 to 12.50
Chicago	9.00 to 9.50
Cincinnati (dealers)	7.00 to 7.50
Cleveland	11.75 to 12.00
Detroit	9.50 to 10.00
Eastern Pennsylvania	13.50 to 14.00
Eastern Pennsylvania (chem.)	16.00 to 17.00
New York (dealers)	9.00 to 9.50
Pittsburgh	12.50 to 13.00
St. Louis	10.50 to 11.00
Valleys	13.50

MIXED BORINGS AND TURNINGS For blast furnace use	
Boston (dealers)	8.00 to 8.50
Buffalo	12.00 to 12.50
Cincinnati (dealers)	6.50 to 7.00
Cleveland	11.75 to 12.00
Detroit	9.00 to 9.50
Eastern Pennsylvania	12.00 to 13.00
New York (dealers)	9.00 to 9.50
Pittsburgh	12.50 to 13.00

PIPES AND FLUES	
Chicago (net)	9.50 to 10.00
Cincinnati (dealers)	8.50 to 9.00
St. Louis	11.00 to 11.50

RAILROAD GRATE BARS	
Buffalo	13.00 to 13.50
Chicago (net)	13.50 to 14.00
Cleveland	13.50 to 13.75
Eastern Pennsylvania	13.50 to 14.00
New York (dealers)	11.25 to 12.00
St. Louis	15.00 to 15.50

FORGE FLASHINGS	
Boston (dealers)	9.50 to 10.00
Buffalo	14.00 to 14.50
Chicago	9.25 to 9.75
Cleveland (over 10 in.)	12.50 to 13.00
Cleveland (under 10 in.)	12.50 to 13.00
Detroit	8.75 to 9.25
Pittsburgh	13.00 to 13.50

FORGE SCRAP	
Boston (dealers)	9.00 to 9.50
Chicago	17.50 to 18.00
Eastern Pennsylvania	14.00 to 14.50

ARCH BARS AND TRANSOMS	
Chicago (net)	19.25 to 19.50
St. Louis	20.50 to 21.00

Iron Steel Works Scrap

AXLE TURNINGS	
Boston (dealers)	9.50 to 10.00
Buffalo	13.50 to 14.00
Chicago	12.00 to 12.50
Cleveland	12.50 to 13.00
Eastern Pennsylvania	14.00 to 14.50
Pittsburgh	15.00 to 15.50
St. Louis	11.00 to 11.50

STEEL CAR AXLES	
Birmingham	17.00 to 18.00
Boston (shipping point)	18.00 to 18.50
Buffalo	16.50 to 17.00
Chicago	19.50 to 20.00
Cleveland	16.00 to 16.50
Eastern Pennsylvania	23.00 to 24.00
Pittsburgh	20.50 to 21.00
St. Louis	20.50 to 21.00

SHAFTING	
Boston (shipping point)	16.00 to 17.00
Chicago	19.75 to 20.00
Eastern Pennsylvania	22.00 to 23.00
New York (dealers)	17.50 to 18.00
St. Louis	18.00 to 18.50

Iron Foundry Scrap

CAR WHEELS	
Birmingham, iron	$16.00 to 16.50
Boston (consumers)	17.00 to 17.50
Buffalo, iron	16.50 to 17.00
Buffalo, steel	17.00 to 17.50
Chicago, iron	14.50 to 15.00
Chicago, steel	16.50 to 17.00
Cincinnati	12.50 to 13.00
Eastern Pennsylvania	17.50 to 18.00
New York iron (dealers)	12.50 to 13.50
Pittsburgh, iron	16.00 to 16.50
Pittsburgh, steel	18.50 to 19.00
St. Louis, iron	15.25 to 15.75
St. Louis, steel	17.50 to 18.00

NO. 1 CAST SCRAP	
Birmingham, cupola	16.50 to 17.00
Boston	18.00 to 18.50
Buffalo	16.00 to 16.25
Chicago, No. 1 machinery	16.50 to 17.00
Chicago, No. 1 railroad or agricultural	16.00 to 16.25
Cincinnati No. 1 machinery cupola (net tons dealers)	18.00 to 18.50
Cleveland, cupola	16.75 to 17.25
Detroit (net tons)	15.00 to 15.50
Eastern Pennsylvania, cupola	17.50 to 18.00
New York, cupola (dealers)	14.50 to 15.00
Pittsburgh, cupola	16.00 to 16.50
San Francisco, delivered	20.00 to 21.00
Seattle	17.00
St. Louis, railroad	16.50 to 17.00
St. Louis, agricultural	16.50 to 17.00
St. Louis, machinery	19.00 to 19.50
Valleys	17.50

HEAVY CAST	
Boston	15.50 to 16.50
Buffalo (breakable)	13.25 to 13.75
Cleveland	13.00 to 13.25
Detroit (automobile) (net tons)	20.00 to 20.50
Eastern Pennsylvania	16.00 to 16.50
New York (dealers)	12.75 to 14.00
Pittsburgh	15.00 to 15.50

MALLEABLE	
Boston, railroad	19.50 to 20.50
Buffalo	17.50 to 18.00
Chicago, agricultural	15.25 to 15.75
Chicago, railroad	16.50 to 17.00
Cincinnati, railroad (dealers)	15.00 to 16.00
Cincinnati, agricultural (dealers)	14.50 to 15.00
Cleveland, agricultural	17.50 to 18.00
Cleveland, railroad	18.50 to 19.00
Detroit	14.50 to 15.00
Eastern Pennsylvania, railroad	16.00 to 17.00
Pittsburgh, railroad	18.00 to 18.50
St. Louis, agricultural	14.50 to 15.00
St. Louis, railroad	14.50 to 15.00

Miscellaneous Scrap

RAILS FOR ROLLING 5 feet and over	
Birmingham	15.50 to 16.00
Boston (dealers)	11.50 to 12.00
Buffalo	17.25 to 17.75
Chicago	16.50 to 17.00
Cleveland	16.00 to 16.25
Eastern Pennsylvania	17.00 to 17.50
New York	13.75 to 14.25
Pittsburgh district	18.50 to 19.50
St. Louis	14.50 to 15.00

LOCOMOTIVE TIRES	
Chicago, No. 1	17.75 to 18.00
Chicago, cut	17.50 to 18.00
St. Louis, No. 1.	16.00 to 16.50

LOW PHOSPHORUS PUNCHINGS	
Chicago	16.00 to 16.50
Eastern Pennsylvania	19.00 to 20.00
Pittsburgh	17.50 to 18.00

Scrap

Prices Weak and Demand Lacking—Surplus Appears Smaller Than Thought

WHILE further weakness is appearing in iron and steel scrap and consumers are not willing to buy some evidence is appearing that surplus stocks are not so large as has been thought. Buying in recent weeks has been of a nature to affect the market little and yet absorb much tonnage. Rejections continue to be a thorn in the situation.

Chicago, Oct. 12.—Further weakening of iron and steel scrap prices brings the market below the lowest expectation of a month ago. Consumer interest is entirely lacking. Heavy melting steel is down 25 cents to $13 to $13.50. Cast borings at $9 to $9.50 are the lowest in four years. Last sale of melting steel to a large consumer was at $13.50 but none is moving now. It is offered at $13. On the list of the Santa Fe railroad $13.50 was paid for heavy melting steel.

Boston, Oct. 12.—Despite continued meager buying, encouragement is found in stabilized prices in New England. The American Brake Shoe Co. bid $13.75 for stove plate delivered Norwood, Mass. Textile is sluggish at $17.50 to $18 delivered.

New York, Oct. 12.—Dullness continues to characterize the iron and steel scrap market, with little consuming demand and such buying as there is by dealers, is largely on back contracts. Some mills still are holding up shipments on material, but, despite some opinion to the contrary there is no great surplus. Some dealers express the opinion that it would be difficult to supply scrap for an order within 60 days.

Philadelphia, Oct. 12.—Buying of iron and steel scrap by consumers continues on a small scale and most users continue to ask postponement of shipments. Brokers are not buying freely. The tone of the market is easier but there is not much business to test prices.

Buffalo, Oct. 12.—A dull market for scrap is noted. Prices are nominally lower and there is not much support. Dealers say they probably could not get more than $17.50 for No. 1 heavy melting steel. Purchasing of turnings and borings has stopped and inquiry for stove plate and No. 1 cast has been withdrawn.

Pittsburgh, Oct. 12.—Scrap yard stocks are well cleaned up in the Pittsburgh area and recent orders from several customers for fairly large quantities have absorbed practically all the high grade scrap available. A broker bought heavy melting steel on the Pennsylvania railroad list for a nearby mill, the successful bid being about $18.10, the same figure paid earlier by another consumer for the Pittsburgh & Lake Erie tonnage, about 35 carloads. This indicates the price that has to be paid for No. 1 railroad heavy melting steel, which some of the mills now are specifying, and quotations of $18 and higher are substantiated by actual transactions in the past few weeks. Ordinary heavy melting steel, however, has sold at $17, rails at $17.50.

Detroit, Oct. 12.—Weakness continues in iron and steel scrap. Demand is limited and dealers are buying cautiously and only in sufficient quantities to meet current needs. Rejections are still frequent. Prices are weak and unsteady.

St. Louis, Oct. 11.—An already weak market due to the apathy of consumers has become weaker. Prices were 25 to 50 cents a ton lower on some items, and further declines may be expected unless consumers take more interest.

Birmingham, Ala., Oct. 11.—Further buying of iron and steel scrap is noted. Quotations remain unchanged with no prospects of increase Supply appears bountiful. Railroads are still offering scrap.

Cleveland, Oct. 12.—The iron and steel scrap market remains fairly steady with some of the lighter grades a little scarce. Heavy melting steel, however, shows a weaker tendency although prices are unchanged, the No. 1 grade ranging from $15.50 to $15.75 and No. 2 from $14.50 to $14.75. Automobile manufacturers, operating on lower schedules, are producing less scrap while consumption keeps up at a good rate, thus introducing a stiffening factor in the market.

About 1852 David Thomas, Catasauqua, Pa., introduced blowing engines at the blast furnace plant of the Lehigh Crane Iron Co. which increased the pressure of the blast to double that which then was customary in England. The results were so surprising that other furnacemen followed his example, but it was not generally copied until after 1860.

Sheets

Market Is Active and Prices Firm—General Demand Continues High

THE sheet market is active, buying at the new level of prices being more general. Demand from car builders and repairers shows an increase, while agricultural and electrical sheet requirements continue heavy. Seasonal influences are causing some decrease in orders from the automotive industry. The price situation is firm.

SHEET PRICES, PAGE 1002

Youngstown, O., Oct. 12—Conditions in the sheet market throughout the Mahoning valley have undergone little change since a week ago. The volume of specifications against contracts coming to makers continues unabated and in many cases mill production is covered until the first week in December. The price situation appears firm, as few mills are inclined to do business at less than 3.10c, base, for black, 2.40c for blue annealed and 3.95c for galvanized. While 3.00c and 3.85c are heard on black and galvanized, respectively, the reports are traceable to sales made a few weeks ago. Extremely low inventory at fabricating plants is reflected by the growing number of requests for delivery. In a few instances fabricators have curtailed output because of underestimated specifications of sheet tonnage and of their inability to obtain new tonnage for immediate delivery. Some mills are in a position to schedule new business within ten days, others two weeks, while still others are not able to promise shipment under six to seven weeks. High-grade tonnage continues quotable at 4.25c for No. 20 gage. Producers have well-balanced hot-mill schedules. Incoming specifications have receded slightly because of curtailment at certain automobile plants.

Boston, Oct. 12.—Sheet demand continues to improve in New England and deliveries are slowing up throughout the East. Inquiry from manufacturers of metal ceiling is particularly heavy. Galvanized sheets are firm at 3.85c, base, Pittsburgh. Black sheets quoted at 3.00c, base, Pittsburgh, are less firm.

Pittsburgh, Oct. 12.—Sustained buying of various grades of sheets at the higher levels is exceeding all expectations. Orders involve 500 to 1000 tons and up to 1500 to 2000 tons. The rate at which car repair and car building tonnage is accruing, and the number of protections that are out on galvanized and blue annealed sheets for such purposes, indicate that car builders will be busy for some time. Automotive buying, is receiving a seasonal setback in several directions. Agricultural implement tonnage promises to continue, and this will make up for any lack of metal lath business, which to date this year has been

a feature of sheet buying, exceeding all previous years in total tonnage. Electrical sheet business which has reached new high levels for the year promises to continue. Sheet mill operations average above 90 per cent, the leading interest being on that basis for the third consecutive week. Deliveries on blue annealed are four to six weeks deferred, black six to eight weeks, and galvanized and other highly finished sheets eight to ten weeks.

Chicago, Oct. 12.—Buyers of black, blue annealed and galvanized sheets are well taken care of for fourth quarter in the district. Some important fill-in tonnages will be placed in the next 60 days and some contracting will be done on the basis of the recent advance of $2 a ton at Indiana Harbor and Gary. The heavy spot buying movement shows no abatement. Roofing, manufacturing and jobbing lines are active. A leading independent producer is unable to promise deliveries inside of six to eight weeks.

St. Louis, Oct. 11.—The buying movement in sheets which began several weeks ago continues, although the volume was slightly diminished during the week. Mills are considerably behind in shipments, and jobbers are pressing for early deliveries.

Philadelphia, Oct. 12.—Mills generally are quoting 2.40c, base, Pittsburgh, on blue annealed sheets; 3.10c on black and 3.95c on galvanized. The former lower prices were done on a number of attractive tonnages in the past week, but a larger percentage of new business is going at the new level and tendency is firmer. Bookings are good and deliveries continue extended.

Cleveland, Oct. 12.—Characterized as the best market this year, sheet sellers are booking sufficient tonnage to defer shipments into the latter part of November. Buying is general, ton being confined to several lines. Many buyers did not anticipate their requirements far enough ahead and now are pushing mills for deliveries. Several lots ranging up to 500 tons were closed during the past week. Metal furniture buyers are specifying heavily, but automotive demands are lighter. One mill reports having received a contract for all of 1926, prices to be set at the first of each quarter. Most of the 3.00c tonnage on mill books has been worked off, and shipments now are being made against 3.10c contracts for No. 24 gage black sheets. Galvanized is holding at 3.95c, blue at 2.40c and autobody at 4.25c.

Tin Plate

Tonnage Setting New High Record—Japan Places Orders

TIN PLATE PRICES, PAGE 1002

Pittsburgh, Oct. 12.—This year undoubtedly will register a total tin plate tonnage 10 or 15 per cent greater than last year, which established a new high record by about 15 per cent. Mills still are busily engaged in rolling plate for shipment this year. After this is out they will be able to start on anticipations for 1927, so that high operations are practically assured throughout the fourth quarter. The present average is slightly above 90 per cent, the American Sheet & Tin Plate Co. maintaining its 92 per cent schedule. From time to time new demands develop abroad, and occasionally an attractive order is placed. The domestic price still is $5.50.

Car Installations Drop

Washington, Oct. 12.—Class one railroads in the first eight months this year installed in service 1440 locomotives, the car service division of the American Railway association reports. This was an increase of 227 over the number installed in the same period last year. Locomotives on order on Sept. 1 totaled 533 compared with 193 on the same date last year.

Freight cars installed in service in the first eight months this year totaled 77,225, a decrease of 28,221 under the corresponding period in 1925. During August 10,967 cars were placed in service, including 4619 box cars, 5145 coal cars and 679 refrigerator cars.

Class one railroads on Sept. 1 had 20,251 freight cars on order compared with 20,863 on the same date last year.

Boiler plates first were rolled in this country in 1825 at Coatesville, Pa.

Pipe

Mills Beginning to Shorten Deliveries—Little Line Pipe Pending—Cast Market Strong

DELIVERIES of pipe from mills are shortening, although on some sizes still remain from eight to ten weeks deferred. Line pipe business is inactive, inquiries and orders being lacking. Cast iron pipe is featured by recommendation of New York water department to award 11,000 tons to domestic makers, although Germans were low bidders. Detroit placed 6500 tons.

PIPE PRICES, PAGE 1002 AND 1036

Pittsburgh, Oct. 12.—The delivery situation on pipe is growing somewhat ameliorated. Mills are catching up on their backlogs of lapwelded pipe, but many buyers find it difficult to anticipate eight or ten weeks and so are postponing their purchases. One or two large lines are up for attention in addition to the large gas line to Denver. The Tidal Oil Co. is building a 4 and 6-inch line from its refinery at Drumright to the Seminole field in Oklahoma. Standard full weight merchant pipe orders still involve small quantities. Pipe mills continue to operate practically full.

Boston, Oct. 12.—Eastern pipe foundries are well booked for the remainder of the year on small sizes. Demand for miscellaneous lots continues active. Gas companies and other large users are buying small lots to fill in the year's requirements. Municipal buying is almost at a standstill. Prices are unchanged.

New York, Oct. 12.—Outstanding in the eastern cast iron pipe market is the recommendation by the department of water supply, of this city, to the board of estimates that the lot of 11,000 tons of cast iron pipe, fittings and special castings be awarded to domestic makers, instead of to the German makers who were low on the great bulk of tonnage. Action has been postponed definitely for another ten days. Municipal demand otherwise is rather light.

Chicago, Oct. 12.—Unfilled orders for cast iron pipe are declining, as work is being pushed for delivery before freezing weather. Contractors are urging prompt shipment, but deliveries are three to five weeks deferred. Municipal business is dwindling and will be minimized until public utility lettings and intermittent awards for next season's work make their appearance in the winter months. Plants are operating practically at capacity. The 4200 tons of 6 to 30-inch class B and C pipe for Wyandotte, Mich., is said to have been awarded to the United States Cast Iron Pipe & Foundry Co. and James B. Clow & Sons at approximately $41, Birmingham. Detroit has closed on 6500 tons of 12 and 16-inch pipe with the United States Cast Iron Pipe & Foundry Co.

Birmingham, Ala., Oct. 12.—New cast iron pipe business is still light but adds sufficiently to the unfilled tonnage to assure steady operation through the remainder of the year. Quotations are still $39 to $40 per ton base for 6-inch and over. Shipments have not diminished and no stock is being carried. Soil pipe and fittings trade still is lagging.

CONTRACTS PLACED

6500 tons, 12 and 16-inch pipe for Detroit, to United States Cast Iron Pipe & Foundry Co.

4200 tons, 6 to 30-inch, class B and C, Wyandotte, Mich., reported awarded United States Cast Iron Pipe & Foundry Co. and James B. Clow & Sons. Coleman & Harding, general contractor.

421 tons, 6 to 12-inch class C pipe, Takoma, Wash., to American Cast Iron Pipe Co.

291 tons, 4 to 8-inch class C pipe, San Diego, Calif, to United States Cast Iron Pipe & Foundry Co.
275 tons, Litchfield, Ill., to National Cast Iron Pipe Co
125 tons, 4 to 12-inch for East Chicago, Ind., to National Cast Iron Pipe Co.

CONTRACTS PENDING

11,000 tons, department of water supply, gas and electricity, New York; domestic makers recommended, instead of German makers, who were low bidders; award expected within 10 days.
552 tons, 8-inch class B pipe, Bolinas, Calif.; bids in Oct. 19.
420 tons, 18-inch class B pipe, South San Francisco Water Co., San Francisco; bids being received.
114 tons, 4 and 6-inch class B pipe, San Diego, Calif.; bids in Oct. 18.

Iron Ore

Market Is Firm—Only Small Lots Sold—Shipments Heavy

Cleveland, Oct. 12.—The market for Lake Superior iron ore is quiet, and firm. Small fill-in lots continue to be closed, and two requirements aggregating 100,000 tons still are pending, with possibility of being placed later.

While shipments from the head of the lakes are heavy, considerable ore is being forwarded direct to furnaces, and the lower lake dock situation next spring probably will be as favorable from the producers' standpoint as it was this year, tending to early demand for new tonnage. Continued demand for vessel capacity is having a tendency to keep ore prices firm.

Locomotive Orders Gain

Washington, Oct. 12.—Railroad locomotive shipments in September totaled 134 of which 122 were for domestic delivery, compared with 124 and 94 in August, according to principal manufacturers' reports to the department of commerce. Further comparisons of shipments and unfilled orders follow:

Year and Month	Shipments	Domestic		Unfilled order	Domestic	
	Total	Steam	Electric	Total	Steam	Electric
1920	2,683	1,318	306	.....	.....	.....
1921	1,558	830	221	.....	.....	.....
1922	1,405	1,056	128	.....	.....	.....
1923	3,378	2,982	207	.....	.....	.....
1924	1,554	1,312	99	.....	.....	.....
1925						
Sept.	100	42	16	390	278	41
Total (9 mo.)	913	583	97	.....	.....	.....
Oct.	93	47	21	530	386	40
Nov.	106	52	8	585	435	46
Dec.	104	68	18	708	557	54
Total	1,216	755	144	.....	.....	.....
1926						
Jan.	121	96	11	653	506	53
Feb.	163	101	22	572	442	60
March	162	146	11	780	635	50
April	151	122	12	713	580	44
May	140	105	14	726	585	46
June	159	133	11	667	522	53
July	132	82	20	555	445	36
Aug.	124	78	16	525	455	26
Sept.	134	109	13	498	386	24
Total (9 mo.)	1,286	972	130	.....	.....	.....

Bars

Buying and Consumption Continue at High Rate—Prices Hold Firmly

SPECIFICATIONS by consumers against fourth quarter contracts are being made in volume equal to or exceeding the similar period of third quarter. Some mills find bookings exceeding shipments and specifications are almost equal to production. Changes in sources of demand are about equalizing one another. Prices are steady and firmer than in the past.

BAR PRICES, PAGE 1002

Chicago, Oct. 12.—Users of soft steel bars are submitting fourth quarter specifications even more promptly than for third quarter. While obligations on bars are heavier than on other finished steel, orders for all material, with the exception of sheets, are being shipped with a minimum of deferred delivery. Consumers seem to be advancing orders more than was the case several weeks ago, but no tendency to build up stocks is developing. Bar specifications, which made a substantial gain the past week over the preceding period, now are only slightly behind shipments, and bookings are slightly ahead of shipments. The farm implement outlook appears more favorable. Signs of lessoned automotive activity within the next 30 days are appearing, as some automotive interests have begun to outline restricted programs because of recent unfavorable weather in middle western farm territory. The 2.10c quotation for soft steel bars is firmer at Chicago mills than a month ago.

Boston, Oct. 12.—The steel bar market is exceptionally firm at 2.00c Pittsburgh or 2.365c delivered, and both inquiry and sales have improved during the past week. One important producer reports New England sales ahead of a year ago. Another maker is expecting to advance to 2.10c Pittsburgh on small lots. Automobile part manufacturers have been the heaviest buyers.

Buffalo, Oct. 12.—Buffalo mills have a comfortable bar tonnage on their books and daily volume of business is good. The price is 2.265c depending on tonnage and shipment date. Buffalo steelworks operation is around 85 per cent of total capacity.

Pittsburgh, Oct. 12.—Merchant steel bar orders from cold finishers are numerous. Automobile spring makers, structural shops and other users likewise are furnishing good specifications. A number of deliveries can be had within a three or four-week limit, some sizes being obtainable almost on demand from one or two makers. While the majority of fourth quarter contracts carry 2.00c a number of small ones for a single carload at a time are at 2.10c. Bar mills operations are between 80 and 90 per cent of capacity.

Refined iron bars are being bought in limited tonnages only as needed. Makers are fairly active on day-to-day demands but do not have much ahead of them on order. Prices start at 3.00c and run up to 4.50c, depending upon the degree of refinement.

Cleveland, Oct. 12.—Corrigan, McKinney Steel Co. is now booking bars, priced at the time of delivery; its new bar mill may be operating by the end of October. Automobile schedules at Detroit and Toledo are easing off somewhat. With the general run of users, consumption is unchanged. Some consumers are not now in the market, having specified out all of their third quarter commitments, but their rate of consumption has not declined. Bars are quoted at 2.00c, Pittsburgh, or 2.19c, Cleveland, with the mills claiming additional firmness. Most small lots are priced at 2.10c, Pittsburgh.

Hoops and Bands

Buying in Small Quantities Continues the Rule—Prices Steady

HOOP PRICES, PAGE 1002

Pittsburgh, Oct. 12.—Considerable tonnages come each week in the narrow hoop and band sizes to makers of hot rolled flats from small stamping manufacturers, so they are not entirely dependent upon cooperage interests. Demand is widespread but usually small quantities are bought since no other policy is necessary as long as prompt deliveries are procurable. The price is unchanged and firm at 2.50c, and narrow mill operation is practically full.

Pa. Leads in Minerals

With a total of $1,011,630,879, Pennsylania led all states in value of mineral production in 1924, says the bureau of mines, department of commerce. Its output was 21.64 per cent of the country's total. California was second with $428,175,652 and Oklahoma third with 393,030,665. Other leading states, in order, were: West Virginia, $307,315,205; Texas, $272,729,023; Ohio, $249,049,648; Illinois, $235,796,027; Kentucky, $120,510,775; Michigan, $114,239,386; Indiana, $112,299,075; and Minnesota, $107,844,680.

In 1810 iron rounds for ship bolts and other uses were rolled in Chester county, Pa.

Structural Shapes

Fall Seasonal Activity Decreases But Awards Continue Fair—Two Inquiries in New York Require 21,500 Tons

GENERAL bookings of structural shapes are in undiminished tonnages. Backlogs of shape mills have been built up until deliveries now are deferred from 30 to 60 days in some cases. Movement of shapes is unusually good for the season at Buffalo. Awards in New York district were more numerous during the last week. Two major inquiries include 11,500 tons for subway work in New York and 10,000 tons for an auditorium in Atlantic City, N. J. Prices continue based on 2.00c, Pittsburgh, equivalents in most places. Boston shows some weakness, one maker offering 1.95c, Pittsburgh. Chicago district mills hold to 2.10c, Chicago. Fabricated quotations are increasing in strength, although competition remains keen.

STRUCTURAL SHAPE PRICES, PAGE 1002

New York, Oct. 12.—Two large inquiries, totaling 21,500 tons, feature the eastern structural market. One calls for 11,500 tons for a local subway section, and the other for 10,000 tons for a municipal auditorium at Atlantic City, N. J. Awards are a trifle more numerous, with several jobs ranging around 1500 tons. According to figures just compiled by the Structural Steel Board of Trade, September buying in the metropolitan district aggregated 34,078 tons, as against 30,415 tons in August. This is exclusive of bridges, subway work, piers, etc.

Boston, Oct. 12.—Some improvement in structural contracts is reported for the past week. Prices are slightly less firm. One maker is offering 1.95c, Pittsburgh, but the bulk of the sales are at full 2.00c or at 2.365c, delivered.

Philadelphia, Oct. 12.—Shape bookings continue fair, although not at a rate prevailing some weeks ago. Prices hold at 1.90c to 2.00c, Pittsburgh, with 1.85c being done occasionally on large lots.

Buffalo, Oct. 12.—Late season movement of structural shapes is unusually good. Some of the principal fabricating establishments here are booked about to capacity for this quarter, and can take only fill-in business. The mill price on shapes holds at 2.265c, Buffalo.

Pittsburgh, Oct. 12.—Structural shape backlogs apparently are growing instead of being reduced, as would ordinarily be expected at this time of the year, due to seasonal influences. Deliveries cannot now be had in less than four or five weeks. Prices are firm, 2.00c being the ruling figure. Many fabricators still are anxious for jobs and name attractively low bids in competition.

Cleveland, Oct. 12.—Less tendency of buyers to seek prices under 2.19c, Cleveland, or 2.00c, Pittsburgh, on plain structural material is noticeable as mills start shipping on fourth quarter contracts. Specifications the past week showed improvement. The largest award in the territory was 2900 tons for a Buick building at Flint, Mich., to the Flint Structural Steel Co.

Chicago, Oct. 12—Fabricators' shops are busy on pending work, and are booked 30 to 60 days ahead, but the bulk of the larger seasonal structural awards in the district already has been closed. A large amount of smaller tonnage is pending and awards for this class of work are numerous. Car inquiries already in sight will call for fair tonnages of shapes, plates and bars. Specifications by fabricators show no diminution, and the quotation for plain material is firm at 2.10c, Chicago.

Awards Compared

	Tons
Awards this week	30,070
Awards last week	18,613
Awards two weeks ago	35,230
Awards this week in 1925	35,181
Average weekly awards, Sept.	35,097
Average weekly awards, 1926	28,564
Total awards to date, 1925	1,355,079
Total awards to date, 1926	1,173,438

CONTRACTS PLACED

2900 tons, foundry for the Buick Motor Co., Flint, Mich., to Flint Structural Steel Co.

2300 tons, Missouri-Illinois Bridge Co., for Mississippi river bridge at Louisiana, Mo., to Wisconsin Bridge & Iron Works.

2300 tons, Fern Rock subway shops, Philadelphia, to Phoenix Bridge Co.

2065 tons, involved in the following items:
- 26-story apartment hotel, 112-8 West Seventy-second street, New York, to A. E. Norton, Inc.
- 6-story loft, Broadway and 123rd street, New York, to the Hay Foundry & Iron Works.
- Addition to the A. S. P. C. A. building, Butler street, Brooklyn, N. Y.,
- Hospital construction, 446 West Forty-third street, New York, both to Levering & Garrigues Co.
- Distributing station, 441 West Fifty-third street, New York,
- Transmission tower for the Brooklyn Edison Co., Bush Terminal, Brooklyn, N. Y., both to Hedden Iron Construction Co.

2050 tons, highway bridge over Illinois river, at Florence, Ill., to Illinois Steel Bridge Co.

1575 tons, bridge over Illinois river at LaSalle, Ill., to Illinois Steel Bridge Co.

1500 tons, addition to Kings County hospital, Long Island, N. Y., to the Easton Structural Steel Co.

1500 tons, 16-story apartment, Broadway and 102nd street, New York, to Dreier Iron Works.

1500 tons, courthouse, Santa Barbara, Calif., to Llewellyn Iron Works.

1400 tons, Beth Israel hospital, Newark, N. J., through Starrett Bros., New York, to McClintic-Marshall Co.

1200 tons, Huntington Hall apartments, Philadelphia, to McClintic-Marshall Co.

1200 tons, Scottish Rite temple building, at Oakland, Calif., to Moore Shipbuilding & Dry Dock Co.

900 tons, four buildings for National Carbon Co., Cleveland, at Fostoria, O., to American Bridge Co.

650 tons, cement plant for Yosemite Portland Cement Co., Merced, Calif., to Western Pipe & Steel Co.

600 tons, open-hearth for Otis Steel Co., Cleveland, to McMyler-Interstate Co.

600 tons, Seaside hotel, Atlantic City, N. J., to American Brown-Boveri Electric Corp., through Irwin & Leighton, Philadelphia, general contractors.

550 tons, building for the Weyerhauser Timber Co., Lewiston, Idaho, to Pittsburgh-Des Moines Steel Co.

450 tons, plant building for the International Paper Co., Liverwood Falls, Me., to Megquire & Jones Co.

400 tons, high school, Berea, O., through R. S. Ursprung, general contractor, to Forest City Structural Steel Co.

340 tons, high school, Woonsocket, R. I., to Eastern Bridge Co.

320 tons, Pina building, Tucson, Ariz., to unstated fabricators.

300 tons, Schaetzke apartments, Milwaukee, to Lakeside Bridge & Steel Co.

300 tons, including 125 tons for a building for the Isaly Dairy Co., Youngstown, to Guibert Steel Co.

300 tons, Selby Shoe Co. plant, Portsmouth, O., through H. K. Ferguson Co., Cleveland, general contractor, to Massillon Bridge & Structural Co.

270 tons, Pierce-Arrow sales room, Buffalo, to R. S. McMannus Steel Construction Co.

250 tons, apartment, 175th street and McCombs avenue, New York, to B. Schacht & Sons.

250 tons, Bay View theater, Milwaukee, to Lakeside Bridge & Steel Co.

250 tons, two Strauss bascule bridges for Sonoma county, Calif., to Pacific Rolling Mill Co.

250 tons, plant addition for Fisher Body Co., Cleveland, to Forest City Structural Steel Co.

210 tons, Pope's Hill bridge, Dorchester, Mass., to Phoenix Iron Works. Kalman Bros. general contractor.

200 tons, boiler house for Chrysler Motor Car Co., Detroit, through H. K. Ferguson Co., Cleveland, general contractor, to Forest City Structural Steel Co.

200 tons, Glendale viaduct for Pacific Electric Railway Co., Los Angeles, to Llewellyn Iron Works.

200 tons, memorial building, Framingham, Mass., to Eastern Bridge Co.

190 tons, Magee hospital, Pittsburgh, through J. Lauer & Sons, Pittsburgh, general contractor, to an unstated fabricator.

185 tons, Gilman street bridge, Somerville, Mass., to Boston Bridge Works. Kalman Bros. general contractor.

175 tons, two 160-foot riveted spans, Pistol River bridge, Curry county, Oreg., to Pacific Iron Works, Portland, Oreg.

140 tons, Memorial hospital building, 2 West 106th street, New York, to McDougal & Potter.

100 tons, work including plant for Mohawk Limestone Products Co., Jordanville, N. Y., to Fort Pitt Bridge Works.

CONTRACTS PENDING

11,500 tons, subway section 5, route 101, New York; bids close Oct. 29.
10,000 tons, municipal auditorium, Atlantic City, N. J.; pending.
4500 tons, new Hotel Schroeder at Milwaukee; Holabird & Roche, Chicago, architects. Plans ready about Nov. 15.
2100 tons, approach work for the New Jersey state highway commission, Newark, N. J.; bids asked.
2000 tons, 23-story office building for Rhode Island Industrial Trust Co., Providence, R. I.; bids in. General contract to Starrett Bros.
2000 tons, Cottage Farm bridge, Boston; bids in. Phoenix Iron Works, low bidder.
1800 tons, annex for Hotel Manger, Seventh avenue, New York; bids asked.
1000 tons, building for the Ward Baking Co., Baltimore; pending.
1000 tons, 14-story Tishman apartment, Seventy-fifth street and Park avenue, New York; pending.
800 tons, Aiken apartments, Pittsburgh, general contract awarded to Ellwood Lumber Co., Point Breeze, Pittsburgh.
450 tons, school, Boston; bids in.
250 tons, gates for Stony Gorge dam, Orland, Calif.; bids being taken.
225 tons, Webster, Mass., memorial; bids in. General contract to Keith Bros., Worcester, Mass.
200 tons, bridge for the Chesapeake & Ohio; bids asked.
200 tons, Pelican theater, Klamath Falls, Oreg.; bids received.
135 tons, building for San Quentin, Calif., prison; bids in.
100 tons, approximately, residence for James W. Gerard, 1014 Fifth avenue, New York; bids asked.
Several hundred tons, building for the Union Dime Savings Bank, Sixth avenue and Fortieth street, New York, bids asked; Alfred H. Taylor, architect.
Tonnage unstated, addition for the Chicago Pneumatic Tool Co. at Franklin, Pa.; bids about to be asked.

Tractor Shipments Drop

Washington, Oct. 12.—September shipments of electric industrial trucks and tractors totaled 97, identical with August, according to returns to the department of commerce from nine manufacturers. Tractor shipments dropped four, other types increased one and exports gained three. Other comparisons follow:

1925	Tractors	Domestic All other types	Exports
Quarter ending March 31	45	259	41
Quarter ending June 30	49	280	50
Quarter ending Sept. 30	57	286	12
Quarter ending Dec. 31	41	295	25
1925 Total	192	1,120	128
1926			
Quarter ending March 31	44	310	17
Quarter ending June 30	50	281	32
Quarter ending Sept. 30	39	258	8
January, 1926	21	86	4
February	15	96	5
March	11	128	8
April	17	90	4
May	12	87	9
June	21	104	19
July	15	95	1
August	14	81	2
September	10	82	5

Isaac Proctor was the owner of a warehouse on the north bank of Stony creek in Johnstown, Pa. about 1800, which was maintained for the express purpose of receiving and storing bar iron from the forges of the Juniata valley, which material was hauled to Johnstown over the Frankstown road and thence shipped in large flat boats to Pittsburgh by way of the Conemaugh, Kiskiminetas and Allegheny rivers.

Concrete Bars

Buying Sags Off During Past Week as Large Awards Decrease—1927 Work Appears

REACTION from large awards of the previous week marked concrete bar activity of the past few days. Large contracts failed to appear, and inquiries also were less numerous. A large aggregate tonnage continues pending, however, and heavy awards are expected this fall. Chicago sanitary district work will take 3700 tons; Pennsylvania road work 500 to 1000 tons.

REINFORCING BAR PRICES, PAGE 1002

Chicago, Oct. 12.—Larger reinforcing bar awards continue to drag, but numerous small-tonnage business is being closed. Fresh inquiry is falling off. The record of general contracts awarded and plans prepared in the past week show a fair amount of additional projects, including 30 apartment houses and apartment-office buildings. It is estimated that 3700 tons of billet bars will be required by the sanitary district of Chicago for work at Stickney, Ill. It is reported that some attractive tonnages of billet steel are being bought around 2.25c, Chicago.

Boston, Oct. 12.—Increased activity is reported in the concrete bar market at Boston. Contracts have been individually small and prospective work lacks large tonnages. Prices are unchanged at 2.265c for mill delivery and 3.00c out of Boston warehouses.

Buffalo, Oct. 12.—While the peak of reinforcing bar buying seems to have been left behind for this year, considerable sales volume is being reached through small lot orders. One Buffalo maker sold four lots of about 50 tons each last week and considerable inquiry is out. Mill operation is being held at high levels unusually late in the season. The price on mill shipment lots is 2.265c, Buffalo.

Pittsburgh, Oct. 12.—Jobs closed involving the use of reinforcing concrete bars rarely require more than 20 or 25 tons, although at least one is noted this week. Several larger jobs are scheduled for early award. Between 500 and 1000 tons of state road work is coming up for letting this week, and reports from Harrisburg indicate that the 1927 program involving 500 miles at the rate of 25 tons per mile will require approximately 12,500 tons of bars. Prices are well sustained at 2.00c.

Cleveland, Oct. 12.—After a week or two of fair inquiry, the local concrete reinforcing bar market again lapsed into dullness. One of the leading sellers in the territory figured on two inquiries in the past week, totaling less than 100 tons. Inquiries for lots of 1 to 10 tons are numerous but many of these are being filled out of warehouse stocks. Mill prices of 2.10c, Cleveland, or 2.00c, Pittsburgh, on new billet steel are steady. Rail steel holds at 1.80c, mill. Stock prices from warehouse range from 2.50c, Youngstown, to 3.00c, Cleveland, with the top price variable.

Awards Compared

	Tons
Awards this week	6,060
Awards last week	12,220
Awards two weeks ago	8,140
Awards this week in 1925	8,230
Average weekly awards, Sept.	6,347
Average weekly awards, 1926	6,485
Total awards to date, 1925	255,142
Total awards to date, 1926	265,440

CONTRACTS PLACED

2000 tons, Kymson Building Corp. building, New York, awarded through R. W. Smith Construction Co., general contractor, to unstated seller.
800 tons, wharf, West Berkeley, Calif., for Golden Gate Ferry Co., to an unstated San Francisco jobber.
450 tons, Orpheum theater, Seattle, to Pacific Coast Steel Co.
400 tons, Alden Park Manor apartment addition, Philadelphia, to Kalman Steel Co.
400 tons, terminal warehouse, Little Rock, Ark., to Laclede Steel Co.
270 tons, Santini warehouse, Bronx, New York, to Concrete Steel Co.
200 tons, Holan school, Detroit, to Concrete Engineering Co.
200 tons, high school, LaSalle, Ill., to Olney J. Dean & Co.
165 tons, Pennsylvania state road work, to Concrete Steel Co.
160 tons, North Side junior high school, Evanston, Ill., to Calumet Steel Co.
105 tons, Jewish community center building, Philadelphia, to Truscon Steel Co.
100 tons, Shasta River dam, Montague, Calif., to unstated interest.
100 tons, Carter estate, San Francisco, to Gunn, Carle & Co.
100 tons, storage warehouse at Louisville, Ky., to Concrete Steel Co.
100 tons, miscellaneous work, including a 25-ton bridge in Indiana and 20 tons of state road work in West Virginia, to Truscon Steel Co.
100 tons, Philadelphia General hospital administration building, Philadelphia, to McClintic-Marshall Co.
100 tons, Telephone Exchange building, Kenosha, Wis., to Concrete Engineering Co.
100 tons, furniture storage warehouse, Chicago, to Calumet Steel Co.
100 tons, St. Nazareth school, LaGrange, Ill., to Calumet Steel Co.

CONTRACTS PENDING

3750 tons, billet bars for Sanitary District of Chicago, at Stickney, Ill.; general contract awarded.
1600 to 3300 tons, pier 45 and 54, San Francisco; bids rejected and new bids will be opened Oct. 13.
750 tons, Stony Gorge dam, Orland, Calif.;

general contract awarded to Ambursen Construction Co.; steel not yet let.
500 to 1000 tons, state highway commission jobs, Harrisburg, Pa.; lettings Thursday or Friday of this week.
400 tons, decking on Carquinez Straits bridge, Crockett, Calif.; bids being received.
350 tons, Rowland & Clark theater, Pittsburgh; bids being taken.
300 tons, joint ownership apartment house in the Schenley district, Pittsburgh; bids to be asked at an early date.
250 tons, school 79, Buffalo; Harrison Construction Co., general contractor.
225 tons, state bridge at Portsmouth, O.; bids in.
215 tons, school at Baltimore and Thomas streets, Philadelphia; McCloskey & Co., low bidder on general contract.
200 tons, Hearst-Moulder school, San Francisco; bids in.
200 tons, stadium for Carlton college, Northfield, Minn.; H. N. Leighton & Co., Minneapolis, general contractors.
200 tons, Sears, Roebuck & Co. building at Philadelphia; pending.
170 tons, Neptune warehouse, Bronx, New York; pending.
150 tons, Roosevelt hotel, Pittsburgh; bids being taken.
130 tons, Liberty Loan building, Washington; pending.
100 tons, theater, Sacramento, Calif.; bids received.
100 tons, school at Waynesburg, Pa.; bids closed Oct. 11.
100 tons, school 65, Buffalo; bids about Oct. 20.
Unstated tonnage for 90 x 160-foot theater and office building for Seitz Theater Co., at Sandusky, O.; W. E. Whitney, 822 West Seventieth street, Chicago, architect.

Alloy Market Is Spotty

Cleveland, Oct. 12.—Decreased demand for alloy steels in the past week was marked. Automotive buying by parts makers in this district has fallen off, although the general run of specifications from other sources continues unchanged. Better demand is expected within the next week or 10 days. Prices continue unchanged, with quotations somewhat stronger.

Boston, Oct. 12.—An unusually heavy demand for alloy steel bars is reported for the past week. One important seller of merchant bars reports alloy bar tonnage placed during the week as greater than merchant steel bar tonnage. A manufacturer nominally taking 50 tons has placed an order for 150 tons of alloy bars, and similar increases have been made.

Finds Pipe Rates Unfair

Washington, Oct. 12.—E. J. Murphy, examiner of the interstate commerce commission has prepared a proposed report for the commission in which he does not find unreasonable or unduly prejudicial fifth-class rates charged on scrap brass and scrap copper, in carloads from Omaha to Chicago, St. Louis and Chrome, N. J. He recommends that the complaint be dismissed. This was the case of Aaron Ferer & Sons, of Omaha against the Chicago, Burlington & Quincy.

The rates on iron and steel pipe in carloads between points in Texas and Oklahoma have been found unreasonable in a proposed report by Harry C. Barron, examiner of the commission and he recommends that reasonable rates be prescribed and reparation be awarded. This decision is in the case of the Atlantic Oil Producing Co. against the Chicago, Rock Island & Pacific railway.

Coal was observed at Pittsburgh as early as 1758.

Rails, Cars

Rail Market Maintains Activity With 200,000-Ton Bookings of Past Week

STIMULATED by awards of more than 200,000 tons of rails during the past week, and several times that amount still pending, the railroad market goes into the midst of fall buying. Track accessory bookings alone are estimated at 65,000 tons. Car placements are scattered but more than 10,000 cars remain actively in the market. Locomotive demand is small.

RAILROAD TRACK MATERIAL PRICES, PAGE 1002

Chicago, Oct. 12.—Most western roads have allotted their rail tonnages for 1927 requirements, but additional orders for both rails and fastenings remain to be placed for fall delivery. Chicago district rail mills now have orders for 300,000 tons, approximately 200,000 tons having been booked in the past week. Santa Fe has placed a heavy tonnage with a Colorado mill. New York Central, Chesapeake & Ohio and Rock Island have not yet closed. Indications are that the estimated total of 575,000 tons of rail bookings for this district was not exaggerated. It is estimated that requirements this year will run heavier than since 1921.

Missouri Pacific is in the market for 30,000 tons of 85 and 90-pound rails, and for 2,500,000 to 5,000,000 tie plates, the latter taking 12,500 to 25,000 tons of steel.

With recent rail bookings nearly 65,000 tons of track accessories also were placed. About 15,000 tons of tie plates have been booked in the past ten days at $47, Chicago.

Reports are heard that western roads will place 10,000 to 12,000 cars in addition to inquiries already out, but definite overtures to back up these reports are lacking. Inquiries pending are for about 10,000 cars. It is understood the Missouri Pacific will ask for only 2500 cars. The St. Paul and Chicago & North Western are other important inquiries. Southern Pacific, and Missouri-Kansas-Texas each will build 500 freight cars in its own shops.

Pacific Fruit Express, and Great Northern each are expected to place orders soon for 500 steel underframes. Buffalo, Rochester & Pittsburgh is inquiring for 500 steel coal cars.

New York, Oct. 12.—While a good amount of equipment is in prospect, both car orders and inquiries were light the past week. Locomotive demand also is restricted. Southern Pacific contemplates purchasing 13 locomotives. The proposed purchase of 57 miles of 100-pound rails for the Shinkeihan electric railway, Japan, has been postponed.

Boston, Oct. 12.—Expansion is reported in railroad buying in New England. The Boston & Maine railroad has let a contract with the Bethlehem Steel Co. for 16 additional tender boosters and has also purchased miscellaneous track material. The Manchester street railway has placed orders for $50,000 worth of frog and switch material. Central Vermont has bought frog and switch material and track fastenings.

Pittsburgh, Oct. 12.—Extension of coal mine trackage is responsible for a number of additional orders to billet rolled light rail makers. Tonnage to date is double that of September. The price is established firmly at $36. Rail-steel light rail makers are obtaining their share of business, with a minimum price of $34.

Several inquiries for 5000 kegs of spikes apiece have developed and one or two railroads want up to 2,000,000 tie plates at a time. Delaware & Hudson is in the market, the Northern Coast Line, and the International Great Northern.

CAR ORDERS PLACED

Empire Refineries, Inc., 30 tank cars, to the General American Tank Car Corp.
Chicago & North Western, four dining cars, to the Pullman Car & Mfg. Corp.
Maryland & Pennsylvania, one rail motor car, to the Electro-Motive Co.
Southern Pacific, 500 box cars, to own shops.

LOCOMOTIVE ORDERS PLACED

Manila Railroad Co., 3 Pacific-type locomotives, to Baldwin Locomotive Works.

RAIL ORDERS PLACED

66,000 tons, by Illinois Central, to United States Steel Corp. subsidiaries.
16,000 tons, Central of Georgia, to Tennessee Coal, Iron & Railroad Co.
23,000 tons, Union Pacific, to Illinois Steel Co.
18,000 tons, Wabash, 7500 tons to Inland Steel Co., 7500 tons to Illinois Steel Co. and 3000 tons to Bethlehem Steel Co.
5,500 tons, Northern Pacific, to Illinois Steel Co.

CAR ORDERS PENDING

Buffalo, Rochester & Pittsburgh, 500 steel coal cars; pending.
Chicago & North Western, 100 flat cars; bids asked.
Long Island, 60 motor passenger cars and 30 trailer cars; 20 passenger cars for steam service and four combination passenger and baggage cars; and five caboose cars; bids asked.
Missouri-Kansas-Texas, 500 freight cars; construction contemplated for own shops.
Pacific Fruit Express, 500 underframes; bids asked.
Pennsylvania Coal Co., 300 mine cars; bids asked.
Southern Pacific, 35 coaches; bids asked.

LOCOMOTIVE ORDERS PENDING

Southern Pacific, 13 locomotives; contemplated.
New York, Chicago & St. Louis, four locomotives; pending.

Wire

Better Conditions Appear as Consumers Buy More Freely—Prices Are Firm

GENERAL improvement in demand for wire and wire products has appeared in all producing centers and the final quarter promises to be satisfactory. Buying continues in small lots as jobbers are keeping their stocks a little ahead of consuming demand. Producers are unable to increase the rate of production. Prices show no weakness and shading has vanished.

WIRE PRICES, PAGE 1002

Chicago, Oct. 12.—Demand for wire products for manufacturing consumers continues good, while the jobbing trade is buying conservatively, due in part to unseasonable weather, especially in the Middle West. Producers are holding output close to users' needs, with no tendency to build up stocks. Demand for nails continues good, particularly from industrial sources.

New York, Oct. 12.—Demand for wire and nails has improved since Oct. 1 in this territory. In fact, the trade now looks forward cheerfully to the remainder of the year. Prices are firm at 2.50c, base, Pittsburgh, for wire and 2.65c, base, Pittsburgh, for nails. Estimates indicate that wire and nail mills are operating between 40 and 60 per cent of capacity.

Pittsburgh, Oct. 12.—Fall buying on the part of wire products jobbers who are replenishing their stocks has brought about somewhat improved conditions for makers. Specifications on manufacturers' wire are heavy in the aggregate but individual orders are small. Jobbers for the most part are ordering single mixed carloads. Prices are maintained at 2.50c for plain wire and 2.65c for wire nails. Demand for cement coated nails has improved considerably, and staples and other specialties are active. Mills can operate only about 50 or 60 per cent of capacity and backlogs are by no means large.

Bolts, Nuts, Rivets

Fourth Quarter Contracting Practically Ended—Prices Firm

NUT AND BOLT PRICES, PAGE 1002

Chicago, Oct. 12.—Fourth quarter contracting is practically closed, business for the period having met expectations. Railroad specifications have become heavier in recent weeks. Farm implement and tractor makers' specifications are not up to earlier estimates. Prices for bolts, nuts and rivets continue steady.

New York, Oct. 12.—Ulen & Co., New York, are negotiating for about 150 tons of bolts and nuts for shipment to Colombia, South America. This is the largest export inquiry in this territory for some time. Demand for bolts and nuts has improved considerably since Oct. 1. Not only are contract specifications better, but considerable new business is coming from other than regular contract buyers. It is estimated that the bolt and nut plants of the country are running at 50 to 60 per cent of capacity.

Pittsburgh, Oct. 12.—While demand for nuts and bolts is falling off slightly no material change has come in market conditions the past few weeks. Last quarter contracts are nearly all signed, and specifications against them already are fairly liberal. Makers average 70 per cent operations and claim the price is firm. Machine bolts are quoted at 50, 10 and 10 off. Structural rivets are in good demand, particularly ½-inch and larger. Orders for other varieties of rivets likewise are fairly numerous. The price is firm at 2.60c. One maker continues to operate its rivet department at 100 per cent, having assumed some obligations of one or two rivet makers who still are shut down.

Boston, Oct. 12.—Noticeable improvement in wire sales has developed in New England.

Cold Finished Steel

Lessened Automotive Demand Balanced by Others Needs

Pittsburgh, Oct. 12.—Business in cold finished steel bars is about the same as last month. Customers still take material in small lots as needed. The seasonal falling off in automobile tonnage which, it is expected, will be more aggravated as the month goes on, is partly made up by improved business from agricultural implement and tractor manufacturers. Also, within the past two weeks a decided betterment has been experienced by manufacturrs of textile machinery in New England and some attractive orders have been received. The 2.50c price continues more or less nominal, no real test having presented itself since fourth quarter contracts were booked. Operations average 65 to 70 per cent.

Prepare Bounty Report

Washington, Oct. 12.—It is understood the state department has a cablegram from Berlin stating the mixed commission investigating iron and steel bounties in Germany has reached an agreement on a report, and its findings are being prepared for the department.

Strip Steel

Demand Fairly Steady and Prices Continue To Hold Firm

STRIP PRICES, PAGE 1002

Pittsburgh, Oct. 12.—While automotive tonnage has fallen off from some users of strip steel this lack is being made up by consumers in other lines. Operations are well sustained and prices are unchanged, with cold strips quoted at 3.50c to 3.60c and hot held firmly at 2.30c. Cold strip mill operations average between 70 and 75 per cent, while the hot mill average is nearer 85 per cent.

Chicago, Oct. 12.—Automotive interests are taking their usual tonnages of hot rolled strip steel, but automobile parts manufacturers are letting up on their specifications. Cold rolled strip steel is less active. Cold rolled strip business is going at 3.80c, delivered Chicago, while hot rolled strip is firm at 2.50c to 2.60c, Chicago.

Unfilled Orders Gain

Unfilled tonnage of the United States Steel Corp. as of Sept. 30 showed a gain of 51,174 tons over Aug. 31. Bookings as of Sept. 30 totaled 3,593,509 tons, compared with 3,717,297 one year ago and 3,473,780 two years ago. A comparison of corporation reports for the past two and one half years follows:

Date	Total	Change, tonnage	Change, per cent	
Sept. 30, 1926	3,593,509	51,174	+ 1.42	+
Aug. 31, 1926	3,842,335	60,187	— 1.67	—
July 31, 1926	3,602,652	124,010	+ 3.56	+
June 30, 1926	3,478,642	170,608	— 4.41	—
May 31, 1926	3,649,250	218,726	— 5.91	—
Apr. 30, 1926	3,867,976	511,959	—13.9	—
Mar. 31, 1926	4,379,935	236,887	— 5.13	—
Feb. 28, 1926	4,616,822	265,917	— 5.7	—
Jan. 31, 1926	4,882,739	150,625	— 3.0	—
Dec. 31, 1925	5,033,364	451,584	+ 9.8	+
Nov. 30, 1925	4,581,780	472,597	+11.5	+
Oct. 31, 1925	4,109,183	391,886	+ 9.5	+
Sept. 30, 1925	3,717,297	204,494	+ 5.8	+
Aug. 31, 1925	3,512,803	26 664	— 0.756	—
July 31, 1925	3,539,467	170,991	— 4.6	—
June 30, 1925	3,710,458	339,342	— 8.3	—
May 31, 1925	4,049,800	396,768	— 8.4	—
Apr. 30, 1925	4,446,568	416,996	— 6.6	—
Mar. 31, 1925	4,863,564	421,207	— 7.0	—
Feb. 28, 1925	5,284,771	247,488	+ 4.8	+
Jan. 31, 1924	5,037,323	220,647	+ 4.58	+
Dec. 31, 1924	4,816,676	784,707	+19.1	+
Nov. 30, 1924	4,031,969	506,699	+14.3	+
Oct. 31, 1924	3,525,270	51,490	+ 1.48	+
Sept. 30, 1924	3,473,780	184,203	+ 5.59	+
Aug. 31, 1924	3,289,577	102,505	+ 3.02	+
July 31, 1924	3,187,072	75,433	— 2.3	—
June 30, 1924	3,262,505	365,584	—11.1	—
May 31, 1924	3,628,089	580,358	—13.19	—
April 30, 1924	4,208,447	574,360	—12.008	—

Fire Equipment Sales Up

Washington, Oct. 12.—Shipments of fire extinguishing equipment in August, as reported to the department of commerce, included 153 pieces of motor apparatus and 50,681 pieces of hand type, compared with 142 motor and 54,234 hand pieces in July.

Nonferrous Metals

Firmer Price Tone Noted Following Trend Toward Lower Levels—New Buying Limited But Consumption Still Is Heavy

Prices of the Week, Cents a Pound

	Copper—Electro delivered	Copper—Lake delivered	Copper—Casting refinery	Spot Straits Tin, N. Y.	Lead New York	Lead East St. Louis	Zinc St. Louis	98-99% Aluminum	Spot Antimony	Ingot Nickel
Oct. 6	14.20	14.35	13.80	71.75	8.50	8.30	7.32½	27.00	13.50	35.00
Oct. 7	14.12½	14.27½	13.70	71.50	8.47½	8.25	7.30	27.00	13.87½	35.00
Oct. 8	14.12½	14.25	13.67½	70.75	8.47½	8.22½	7.27½	27.00	14.75	35.00
Oct. 11	14.12½	14.25	13.70	70.50	8.47½	8.22½	7.30	27.00	14.62½	35.00
Oct. 12	Holiday									

NEW YORK, Oct. 12.—A firmer tone made its appearance in the nonferrous metal market after the first ten days of the month had seen a considerable shaking down of market values. Aluminum and nickel hold their usual steady courses, but copper, tin, zinc and lead prices were cut considerably. Even at that, tin remained unusually high. Antimony moved in a circle, a more or less regular habit.

Consumption of all metals continues above the average of other years at this season. Producers' stocks are low, especially compared with shipments, but output is high and service good, so consumers do not worry about future supplies, and on every little indication of easiness they hold off on their buying as long as possible. European markets and export buying here also are slack and contribute more toward price depression than any domestic events. The disturbance in the cotton market is against firmness in some other commodities.

Zinc—This metal affords an example that more or less explains the situation in all the metal markets. Statistics by the American Zinc institute for September show stocks were cut about 2500 tons to 15,699 tons, while shipments remained unusually high at 54,609 tons. On these shipments 50,384 tons were for domestic buyers, and on a daily basis were only 4 tons less than the August daily, whereas the August shipments, both domestic and total, were the largest ever made. In the face of this situation the price of prime western at the end of September was 7.37½c East St. Louis, 5 points less than at the beginning of the month, while on the past Saturday the metal sold down to 7.25c. Since then the statistics have caused smelters to assume a firmer attitude.

Perhaps a factor in the situation is the increase in number of retorts operating. The low stage of stocks appears to indicate increased output was necessary last month, but lately with buying slow, backlogs short and smelter operations high, some smelters have been a little anxious. On the whole the market has appeared well balanced and for a number of months prices have fluctuated within a narrow range.

Copper—The market appears to be mostly 14.12½c, Connecticut, and 14.25c, Midwest, though a little shading has been done on the eastern price. Buying has remained light, though more business has been done in a quiet way lately than appeared on the surface. It is mostly lack of export business that has bothered the market, as mills in this country are rolling and drawing the metal at high rates. Products were cut ¼-cent on account of the lower price of the metal, but in the past few days buying of products is said to have been more active.

Tin—Prices have fluctuated in the usual manner of this metal, in the past few days mostly on the easy side, but remaining well above 70.00c for spot. Futures are 2 to 3 cents under spot, or about the same as a week ago. Supplies may be a little more liberal, but no substantial relief is in sight, and consumption in tin plate, mixed metals and other lines continues high.

Lead—Prices have dropped, more as a result of weakness in the foreign market than anything here. In fact some large users agree with producers that left to itself, the market here would be steady, as consumption is excellent. However, signs of easiness cause buyers to hold off as long as possible. The American Smelting & Refining Co. cut to 8.50c, New York.

Mill Products

Base prices cents per pound, f.o.b. mill

SHEETS	
High brass	19.12½
Copper, hot rolled	22.75
Zinc, (100-pound base)	11.75
Lead full sheets (cut ¼c more)	12.25 to 12.75
Aluminum, bright flat, up to 10 gage	36.50
SEAMLESS TUBES	
High brass	24.00
Copper	24.75
RODS	
High brass (round ⅝ to 2½-inch)	16.87½
Naval brass	19.62½
WIRE	
Copper, small lots	16.25
High brass	19.62½

Old Metals

Dealers' buying prices, cents per pound

HEAVY RED BRASS	
New York	8.50 to 8.75
Chicago	9.00 to 9.25
Cleveland	9.50
HEAVY YELLOW BRASS	
Chicago	7.75
Cleveland	7.50
ZINC	
New York	4.00
Cleveland	4.50
HEAVY COPPER AND WIRE	
New York	11.50 to 11.75
Chicago	10.50 to 11.25
Cleveland	11.50
RED BRASS BORINGS	
New York	8.00 to 8.25
YELLOW BRASS TUBING	
Cleveland	7.50
LIGHT COPPER	
New York	9.25 to 9.50
Chicago	9.50 to 9.75
Cleveland	10.00
LIGHT BRASS	
Chicago	7.00
Cleveland	6.00
ALUMINUM	
Clippings	21.00
Borings, Cleveland	14.00
Cast	18.50

Secondary Metals

Remelt aluminum No. 12	22.50 to 23.00
Brass ingot, 85-5-5-5	12.00 to 12.25

Coke By-Products

Larger Supplies of Benzols Results In 1-cent Reduction

New York, Oct. 12.—A reduction of 1 cent in pure and 90 per cent benzols features light oil distillates. This is the first change in many weeks and follows an easier situation in regard to supplies. The market is now 24 cents, works, per gallon for material in tank car lots and 29 cents in drums. Sellers declare there has been little, if any falling off in demand and that easier supplies are due more to an increase in production.

All other distillates are steady, with toluol and solvent naphtha holding at 35 cents, works, in tanks and 40 cents in drums. Commerical xylol is 36 cents, works, in tanks and 41 cents in drums. No change is noted in these distillates either with regard to demand or production.

The sluggish condition continues in naphthalene. Flakes are holding at 6 to 7 cents, works, in large lots and balls at 7 to 8 cents. Phenol is 22 cents, works.

Coke Oven By-Products

Per Gallon at Producers' Plants in Tank Lots

	Spot	Contract
Pure benzol	$0.24	
90 per cent benzol	0.24	
Toluol	0.35	
Solvent naphtha	0.35	(nominal)
Commercial xylol	0.36	(nominal)
Phenol	0.22	0.22

Per Pound at Producers' Plants

Naphthalene flakes	0.06 to 0.07
Naphthalene balls	0.07 to 0.08

Per 100 Pounds Delivered

Sulphate of ammonia	2.47½	

Warehouse

First Third of October Finds Bookings But Little Diminished from That Period of September—Market Free of Weakness

DEMAND for iron and steel products from jobbers in the first third of October was at the same rate as the first part of September. Improvement in particular lines in various districts continues, sheets especially showing betterment. Prices are firm, the market being relatively free from serious cutting in most distributing centers.

Jobbing demand in the New York metropolitan district is being maintained, with improvement noted in the buying of corrugated sheets. Prices are steady. Black and galvanzied sheet quotations, often the weak spot in the market, appear particularly firm.

Buffalo iron and steel warehouses report early October sales of generous proportions. If demand holds at the rate established in the first third of the month the volume of business booked may establish a new high record for the year. Demand is general both as to materials and consumers.

Aggregate tonnages of steel moving out of Pittsburgh warehouses compare favorably with September, and in one or two directions the total so far this month exceeds that for the same period in September. Numerous orders are noted for small quantities of bars, plates, shapes and reinforcing concrete bars, fabricators and other users requiring quick deliveries ordering this material by truck. Splendid demand also exists for cold finished steel. Warehouses selling sheets report a particularly well sustained demand; in fact, it is heavier than permits of efficient warehouse operation. Prices on sheets are firm on the higher levels put into effect recently.

St. Louis warehouse business was in a slump the last week, the falling off as compared with the previous weeks being attributed in a large measure to the interest of the trade in the baseball games here. Buying in the Mid-continent oil fields is fairly good.

The Chicago iron and steel warehouse market is showing good activity with bars and sheets the leader in demand. Black sheets, No. 18 gage and lighter, are being purchased in large quantities, mostly by sheet metal and metal ventilator shops. Other job-

(*Concluded on Page* 1017)

Quotations in Cents Per Pound at Leading Market Centers

STEEL BARS

Boston	3.265c
Buffalo	3.30c
Chicago	3.00c
Cincinnati	3.30c
Cleveland	3.00c
Detroit	3.15c
Ft. Worth	3.75c
Los Angeles	3.20c
New York	3.24c
Philadelphia	2.90c to 3.20c
Pittsburgh	2.90c
Portland	3.00c
San Francisco	3.30c
Seattle	3.00c
St. Louis	3.15c
St. Paul	3.25c
Tulsa	3.80c

IRON BARS

Boston	3.265
Buffalo	3.30c
Chicago	3.00c
Cincinnati	3.30c
Detroit	3.15c
Ft. Worth	3.75c
New York	3.24c
Philadelphia	2.90c to 3.20c
St. Louis	3.15c
Tulsa	3.80c

REINFORCING BARS

Boston	3.265 to 3.50c
Buffalo	3.30c
Chicago, billet	2.25c to 2.60c
Chicago rail steel	2.00c
Cincinnati	3.20c to 3.30c
Cleveland	2.50c to 3.00c
Detroit	3.15c
Ft. Worth	3.75c
Los Angeles, C.L.	3.05c
Los Angeles, L. C. L.	3.30c
New York	3.15c
Philadelphia	3.15c
Pittsburgh	2.50c to 2.60c
San Francisco, C. L.	3.35c
San Francisco, L C. L.	3.80c
Seattle	3.00c
St. Louis	3.15c
Tulsa	3.80c
Youngstown	2.50c to 2.60c

STANDARD STRUCTURAL SHAPES

Boston	3.365c
Buffalo	3.40c
Chicago	3.10c
Cincinnati	3.30c
Cleveland	3.00c
Detroit	3.25c
Ft. Worth	4.50c
Los Angeles	3.20c
New York	3.34c
Philadelphia	2.75c to 3.00c
Pittsburgh	3.00c
Portland	3.10c
San Francisco	3.30c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.35c
Tulsa	3.80c to 4.16c

PLATES

Boston	3.365c
Buffalo	3.40c
Chicago	3.10c
Cincinnati	3.40c
Cleveland, ¼-inch and thicker	3.00c
Cleveland, 3/16-inch	3.225c
Detroit	3.25c
Detroit, 3/16-inch	3.45c
Ft. Worth	4.50c
Los Angeles	3.20c
New York (sheared and universal)	3.34c
New York (floor)	5.25c
Philadelphia	2.75c to 3.00c
Philadelphia, 3/16-inch	2.95c to 3.20c
Pittsburgh	3.00c
Portland	3.25c
San Francisco	3.30c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.25c
Tulsa	3.80c

NO. 10 BLUE ANNEALED SHEETS

Boston 3/16-inch	3.915c
Buffalo	3.80c
Chicago	3.50c
Cincinnati	3.60c
Cleveland	3.25c
Detroit	3.65c
Los Angeles	3.75c
New York	3.89c
Portland	4.25c
Philadelphia	3.50c
Pittsburgh	3.40c
San Francisco	3.90c
Seattle	4.25c
St. Louis	3.60c
St. Paul	3.75c
Tulsa	4.05c to 4.20c

NO. 24 BLACK SHEETS

Boston	5.10c
Buffalo	4.30c
Chicago	3.95c
Cincinnati	4.05c
Cleveland	3.80c
Detroit	4.10c
Ft. Worth	4.70c
Los Angeles, No. 28	4.75c
New York	4.35c
Philadelphia	4.35c
Pittsburgh	3.95c
Portland	4.90c
San Francisco	4.90c
Seattle	4.90c
St. Louis	4.45c
St. Paul	4.20c
Tulsa, No. 28	5.00c

NO. 24 GALVANIZED SHEETS

Boston	5.80c
Buffalo	5.15c
Chicago	4.80c
Cincinnati	4.90c
Cleveland	4.65c
Detroit	5.05c
Ft. Worth	5.90c
Los Angeles (corr. 28 ga.)	6.00c
New York	5.10c
Philadelphia	5.30c
Pittsburgh	4.80c
Portland	5.75c
San Francisco, No. 28	6.00c
Seattle	5.75c
St. Louis	5.25c
St. Paul	5.15c
Tulsa, No. 28	6.00 to 6.31c

BANDS

Boston	4.015c
Buffalo	4.05c
Chicago	3.65c
Cincinnati	3.95c
Cleveland	3.65c
Detroit	3.80c
Ft. Worth	4.40c
Los Angeles	4.05c
New York	3.99c
Philadelphia	3.75c to 3.90c
Pittsburgh	3.60c
Portland	4.25c
San Francisco	4.15c
Seattle	4.00c
St. Paul	3.90c
Tulsa	4.71c

HOOPS

Boston	5.50c
Buffalo	4.05c
Chicago	4.15c
Cleveland	3.65c
Detroit	4.30c
New York	4.49c
Philadelphia	4.00c to 4.25c
Pittsburgh	3.60c
Seattle	5.00c
St. Paul	4.40c

COLD FINISHED STEEL

	Rounds and hexagons	Flats and squares
Boston	4.05c	4.55c
Buffalo	3.90c	4.45c
Chicago	3.60c	4.10c
Cincinnati	3.85c	4.35c
Cleveland	3.90c	4.40c
Detroit	3.85c	4.35c
Los Angeles	5.25c*	.....
New York	4.00c	4.50c
Philadelphia	4.00c	4.50c
Pittsburgh	3.60c	4.10c
Portland	5.00c*	.....
San Francisco	4.25c*	.....
Seattle	5.00c*	.....
St. Paul	3.85c	.....
Tulsa	4.66c	5.16c

*Rounds only.

COLD ROLLED STRIP

Boston, 0.100 inch, 500 lbs. lots	6.15c
Buffalo	6.35c
Chicago	6.25c
Cincinnati	7.15c
Cleveland, over 500 lbs. lots	5.95c
Detroit	6.20c
New York	6.25c
Philadelphia	6.25c
Pittsburgh	6.30c

FOREIGN IRON AND STEEL
New York duty paid

Swedish, hollow drill steel	15.00c
Swedish iron bars round	6.75c
Flats and squares	7.00c

WELDED PIPE
Discounts from warehouse, New York City Standard Steel Pipe

WROUGHT STEEL PIPE

	Black	Galvanized
⅛-inch butt	—28	+21
¼ to ⅜-inch butt	—36	— 3
½-inch butt	—46	—29
¾-inch butt	—51	—37
1 to 3-inch butt	—53	—39
2-inch lap	—40	—22
2½ to 6-inch lap	—48	—35
7 and 8-inch lap	—44	—17
9 and 10-inch lap	—38	—14
11 and 12-inch lap	—37	—12

WROUGHT IRON PIPE

	Black	Galvanized
¼ to ⅜-inch butt	+44%	+78%
½-inch butt	— 4	+19
¾-inch butt	— 1	+ 9
1 to 1½-inch butt	—14	+ 6
2-inch lap	— 5	+14
2½-inch lap	— 9	+ 6
3 to 6-inch lap	— 3	+ 6
7 to 12-inch lap	— 3	+16

Coast Buys Structurals

Better Demand and Much in Prospect—Foreign Steel at Lower Prices—Foundry Activity Small—Little Iron Sold

SAN FRANCISCO, Oct. 9.—(*By Air Mail*)—Fall buying of steel products has not been as heavy as was expected but a fair tonnage has been booked. The most active product this week was structural steel and awards were the heaviest in over six weeks. Foreign bars and shapes continue to be quoted at prices considerably under those of domestic mills, although recently quotations on foreign material have advanced.

Business conditions generally are good along the Coast and the outlook for 1927 is decidedly encouraging as many projects are now on the boards. Heavy highway programs, including much new bridge work, and general construction activity is anticipated.

Coast Pig Iron Prices

Utah basic	$25.00 to 26.00
Utah Foundry	25.00 to 26.00
*English (2.75 to 3.25 sil.)	25.00
*German	24.25
*Belgian	22.00
*Indian	25.00
*Dutch	22.00

*C.i.f. duty paid.

Pig Iron and Coke

With the exception of one lot, involving 1000 tons of foundry iron, 2.75 silicon, for the Southern Pacific Co., awarded to a western furnace, little of importance has transpired in this market during the past week. Activity among the jobbing foundries has shown little or no improvement during the past thirty days. Prices remain unchanged.

Bars, Plates and Shapes

No action has yet been taken on the inquiry of the Western Harvestor Co., Stockton, Calif., for 600 tons of hot rolled bars, though it is expected a local mill will take the order. Awards of concrete bars this week totaled about 1500 tons. A San Francisco jobber took 800 tons for the West Berkeley wharf, the Pacific Coast Steel Co. booked 450 tons for a theatre at Seattle and Gunn, Carle & Co. secured 100 tons for the Carter estate in San Francisco. Pending business exceeds 9000 tons. Bids on 330 tons for two piers in San Francisco were rejected and new bids will be called for next week. Included among other new inquiries is 400 tons for decking for the Carquinez straits bridge and 200 tons for a school in San Francisco. Prices on domestic material range from 2.30c to 2.35c on large lots to from 2.40c to 2.50c on smaller lots. Foreign concrete bars are quoted at 1.95c to 2.00c c.i.f. duty paid while merchant material is quoted at 1.85c to 1.90c c.i.f. duty paid.

Awards of plates were confined to small lots of less than 100 tons and no new inquiries developed during the week. Pending business aggregates over 10,000 tons. Awards are expected to be made next week on 8000 tons for syphons for the Southern California Edison Co. and 500 tons for a pipe-line at San Diego. Prices on domestic material continue firm at 2.30c c.i.f.

Awards of structural shapes this week totaled over 3300 tons and were the largest in over six weeks. Among these was 1500 tons for the Santa Barbara courthouse, placed with Llewellyn Iron Works. The Western Pipe & Steel Co. booked 650 tons for a plant at Merced, Calif. for the Yosemite Portland Cement Co. and the Western Iron Works booked 125 tons for a sub-station at San Jose for the Pacific Gas & Electric Co. Pending business totals over 11,000 tons. New inquiries include 250 tons for gates for the Stony Gorge dam, Orland, Calif. and 200 tons for a theatre at Klamath Falls, Oreg. Prices on domestic shapes are strong at 2.35c c.i.f. On foreign material 1.75c c.i.f. duty paid is still being quoted.

Other Finished Material

The only award of standard steel pipe reported this week involved 1600 tons of line pipe for the Standard Oil Co., San Francisco, placed with eastern producers. No action has yet been taken on the 950 tons lot for La Mesa, Calif., the 638 tons lot for the Pacific Gas & Electric Co. or on the 470 tons lot for Yakima, Wash. Awards of cast iron pipe totaled over 700 tons. The United States Cast Iron Pipe & Foundry Co. took 291 tons for San Diego and the American Cast Iron Pipe Co. booked 421 tons for Yakima, Wash. Pending business involves over 6500 tons. New inquiries include 552 tons for Bolinas, Calif., 420 tons for South San Francisco and 114 tons for San Diego.

No changes are noted in out-of-stock prices and most distributors report movement so far this month as being in excess of that for the same period of last month. All lines, apparently are active.

Off for Europe

Foundrymen Returning Home After Inspecting Manufacturing Plants

European foundrymen who came to the United States three weeks ago to attend the second international foundrymen's congress in Detroit, and who subsequently visited manufacturing plants in various cities, were scheduled to board ships for home Wednesday at New York. Their last visiting place was Washington, where they went after being the guests of Pittsburgh foundrymen, Friday and Saturday.

The overseas delegates inspected the Edgar Thomson works of the Carnegie Steel Co., and the Westinghouse Electric & Mfg. Co.'s plant at East Pittsburgh, Pa. The foundries of the Westinghouse Airbrake Co., at Wilmerding, Pa., also interested them. Saturday morning they visited the banking establishment of the Union Trust Co., Pittsburgh; they then went to the plant of the H. J. Heinz Co., and in the afternoon visited the shops and laboratories of the Carnegie Institute of Technology. More than 300 Pittsburgh manufacturers attended the banquet Saturday evening in honor of the 80 foreign guests, at the Fort Pitt hotel.

Monday morning the delegates were taken to the White House, treasury, bureau of engraving and printing and other government departments. In the afternoon they went to Arlington national cemetery and other points of interest.

The Europeans were in Cleveland last Wednesday and Thursday, where they inspected plants of the Otis Steel Co., Wellman-Seaver-Morgan Co., Aluminum Castings Co., Allyne-Ryan Foundry Co., Cleveland Co-Operative Stove Co., Ohio Foundry Co., Osborn Mfg. Co., W. W. Sly Mfg. Co., Johnston & Jennings Co., and White Motor Co. They also visited the exhibition of the American Electric Railway association.

S. W. Utley, president-elect, American Foundrymen's association, was one of the speakers at the banquet at the Union club, Wednesday evening, in honor of the visitors. Other speakers were James R. Garfield, former secretary of the interior, John A. Penton, chairman, Penton Publishing Co., Franklin G. Smith, general chairman of the committee having charge of the Cleveland arrangements, and E. V. Ronceray, vice president, Association Technique de Fonderie de France. The visitors were guests of the Penton Publishing Co. at luncheon Thursday.

Fewer Cars Need Repairs

Washington, Oct. 12.—Freight cars in need of repair on Sept. 15 totaled 160,497 or 7 per cent of the number on line, according to the American Railway association. This was a decrease of 899 cars from Sept. 1. It was a decrease also of 30,177 cars compared with the same date last year. Freight cars in need of heavy repairs on Sept. 15 totaled 121,060 or 5.3 per cent.

Cartel To Raise Prices, Hoover Believes

Washington, Oct. 12.—While refusing to discuss the matter officially, it is understood that Secretary of Commerce Hoover believes that the European steel combine will have a tendency to increase rather than to decrease prices of steel and if this happens it will help the American steel industry in its export business rather than hinder it.

Discussing the matter informally Mr. Hoover has pointed out that this combine is being run by expert steel men and not by any government, such as the Chilean nitrate and similar organizations against which he has waged war. The steel combine, he believes, will not be a repetition of the rubber combine.

Nothing definite can be known about the future, he pointed out, until the policies of this combination have become public. It may lead to cutthroat competition in foreign trade with American steel firms, but if it leads to an increase in price, which Mr. Hoover believes is likely, it will make the matter easier rather than harder for the American industry. However, if there is dumping by the new combine it may lead to trouble.

If a success is made of this new combine, Mr. Hoover believes that it is possible that such combinations may extend to other industries. He is of the opinion that in increasing the price, it will not go higher than $5 per ton owing to the fact that experts and not governments are handling the situation as compared with the recent rubber fiasco. Mr. Hoover does not believe, it is said, that the new foreign steel combine is as dangerous as it would be if it were government controlled.

Japan May Pool Sales, Boost Tariff

Washington, Oct. 12.—Increased receipts of continental iron and steel products priced under the Japanese market may lead to higher tariff duties, according to a report to the department of commerce from Commercial Attache Herring to Tokyo. After further consideration by the finance ministry the matter probably will be presented to the diet, when it assembles.

Importers of steel in Japan maintain that the recent competition from continental countries is to be regarded as abnormal and temporary, and that a change in the permanent tariff schedules is consequently not justified. They point out that the effect of the Franco - German - Belgian - Luxemburg steel combine should be a stiffening of prices, and anticipatory rises in quotations for Japanese delivery are reported to have been general during the past few weeks.

The Japanese steel industry is watching with keen interest the continental negotiations, and the European proposals have stimulated the discussion of closer organization in Japan. Thus, at a recent meeting of the Steel Producers' association, the possibility of establishing a common sales agency was considered.

The Nippon Steel Pipe Co., the Kamaishi Iron Works and the Fuji Steel Works are said to be considering and arrangement for the combination marketing of bars. The average monthly production of these three amounts to 14,000 metric tons.

Check Manganiferous Ore Reserves

In the course of a study of the smelting of manganiferous iron ores, being undertaken by the north central experiment station of the bureau of mines, Minneapolis, a check has been made of various sources of information on the resources of manganiferous iron ore on the Cuyuna range in northern Minnesota. Information, based on drilling records and compiled by the Minnesota School of Mines, indicates that there are about 3,500,000 tons of black ore, (low phosphorus, high silica), and about 24,000,000 tons of brown ore, (high phosphorus, low silica). The figures represent what might be called proven ore and do not indicate the ultimate tonnage which may be produced. In order to show the composition and extent of known deposits, the various bodies of brown and black ores have been segregated according to composition and tonnage.

In view of the fact that the Cuyuna range is young and undeveloped, it seems highly probable that future exploration will add considerable tonnage to the figures above. In 1913 the Minnesota tax commission estimated the reserves of manganiferous iron ore in the Cuyuna district as approximately 10,000,000 tons. Information from the same source in 1926 indicates that there are between 27,000,000 and 28,000,000 tons of manganiferous iron ore.

Price Concessions, Not Bounty, Is Rumor

Washington, Oct. 12.—Germany is not paying bounties on finishing iron and steel products but is allowing "price concessions", is understood to be the verdict of the mixed commission which has been investigating low prices on German imports into United States. If this understanding proves correct, the situation will have to be handled from the standpoint of dumping rather than the imposition of countervailing duties. An offiical report by the commission is looked for shortly. The German position is apparently sustained in speculation concerning the report.

The administrative board of the American Engineering council will meet at Ithaca, N. Y., Nov. 11 and 12. Reports will be received from numerous committees which have been active during the summer. Among the topics in the large agenda which is being prepared are safety and production, registration of engineers, government reorganization, and jurisdictional strikes in the building industry. Dean Dexter S. Kimball of Cornell Universtiy, president of the council, will preside.

Steelworks' Coal Piles Are Mounting

Pittsburgh, Oct. 12.—Apparently to fortify itself against a possible cessation of bituminous coal mining activity next April, one large independent steel interest here is having delivered to its storage yard, located near its plants, approximately 1,000,000 tons of coal by river barge. This storage has been going on for some weeks and already a large tonnage has been accumulated. Taking their cue from this, a number of other steel interests plan to increase their coal storage and already one West Virginia steelmaker has placed orders for several hundred thousand tons, to be delivered down the Ohio river in barges. Other inquiries are coming to light each week involving varying amounts, and considerable secrecy is being maintained in connection with them in order that market prices may not reflect the strength which the circulation of such inquiries would naturally furnish. Due to varying influences, coal prices are stronger with each passing week, an important factor is the British coal strike. The British are paying 10c to 15c per ton over recent prevailing prices.

Pig Iron Prices Firmer

(*Concluded from Page* 1003)

appearing for Lake Superior charcoal iron since makers reduced prices $2 a ton to $27.04, delivered, Chicago. Spot buying of northern pig iron shows a shade more strength. Fourth quarter contracting is getting farther along, but considerable iron remains to be placed. Several important inquiries for first quarter are out, and a few buyers are willing to cover for first half. Buying is tending more toward filling immediate needs. The price of $21, Chicago furnace, remains steady despite unmistakable interest in first quarter and first half.

Birmingham, Ala., Oct. 12.—Blast furnace interests are confident another buying movement is near. Larger melters purchase liberally when the base price was reduced to $20, but did not cover their needs for the last three months. Surplus stock of foundry iron will provide only a portion of the demand and two more furnaces are likely to be blown in within 30 days.

Warehouse Buying Steady

(*Concluded from Page* 1015)

ber products also are active. Mill deliveries on ware house sheet orders continue deferred, up to six weeks being the minimum.

Cleveland jobbers are finding business holding even with that of the past several weeks. Improvement in some lines of building materials is slight. Prices are unusually firm, with jobbers finding buyers more interested in prompt deliveries than in shading. The leading seller has just installed a 1x96-inch plate shear in its local warehouse to accommodate larger sizes.

Machine Tool Builders Stress Needs for Improvement

WITH 100 members present, the largest attendance in the history of the organization turned out for the twenty-fifth annual convention of the National Machine Tool Builders' association at the Aspinwall hotel, Lenox, Mass., Oct. 4-6. Standardization work and apprentice training were topics of major discussion, with considerable interest also displayed in the plans for the proposed machine tool exhibit to be held under the sponsorship of the association in the municipal auditorium of Cleveland in the third week of next September. A record-breaking show of industrial machinery is expected, 98 member companies already having definitely indicated their intention of reserving space, although no direct solicitation has thus far been made. Many applications are on hand from machine tool companies outside the organization.

Plans to offset foreign competition, which is becoming more noticeable, were discussed at the meetings. Unethical practices followed by foreign builders in copying American-built machines and then selling them as exact duplicates, equal to the original, were disclosed by some domestic sellers. Fifty-four American companies registered complaints against such practices. Importance of retaining capable talent in the machine tool field through attractive compensation was brought out in discussion of personnel problems.

Record Number At Twenty-Fifth Convention

GROUP meetings, attended by builders of a particular class of equipment, featured two sessions, while an address by Prof. J. W. Roe, New York university, entitled "Plan for Organization of the Machine Tool Section of the Museum of Peaceful Arts" attracted close attention at another.

J. E. Gleason, of the Gleason Works, Rochester, N. Y., was elected president to succeed H. M. Lucas. P. E. Bliss, of the Warner & Swasey Co., Cleveland, was appointed first vice president and W. P. Hunt, of the Moline Tool Co., Moline, Ill., second vice president. A. E. Muller, of the King Machine Tool Co., Cincinnati, will continue as treasurer. Three new directors were appointed as follows: A. H. Tuechter, of the Cincinnati-Bickford Machine Tool Co., Cincinnati; C. C. Swift, of the Ohio Machine Tool Co., Kenton, O.; and Henry Buker, of the Brown & Sharpe Mfg. Co., Providence, R. I.

President Lucas, in his opening address, stressed the necessity for the industry to quote prices commensurate with the worth of its product, to the end that it might place itself in a sound financial position and assume with greater effectiveness the service industry in general demands of machine tool builders. He mentioned this with particular reference to the need of attracting capable men to the industry. Compensation paid its men by the machine tool industry has long been lower than in others and the reason has been, he declared, that it could afford to pay no higher remuneration. Mr. Lucas said that high mortality rate among machine tool companies—something like 3 per cent a year for all companies more than six years of age—was due in no small measure to loss of individual talent in the personnel of various companies.

"Look over those companies that dissolved," he declared, "and note how many of them began to sicken on the day they lost the one man whose individual talent had built them up to relative prosperity. It is a serious and pressing problem to enlist, train and keep the sort of personnel that the industry requires under present conditions.

"The bed rock for the solution of that problem lies in providing adequate compensation for such a staff, compensation that is enough to keep such men from leaving this industry and taking employment in the shops of the industry's own customers, at rates higher than we can afford to pay."

Mr. Du Brul emphasized the need for good salesmanship. This comes first, he declared, and after sales effort, comes quality of product. He warned machine tool builders against lassitude in the matter of patenting devices of true worth. If a combination of old elements produce a new and useful result, it is prima facie the subject of a valid patent under the law, he declared. Often, he continued, an incompetent patent attorney will draw poor claims that do not give all the protection the law allows. The cure is to learn what one is really entitled to claim and to get it, and then to defend it if infringed. Good patents, he said, well defended, build up a wall behind which the wise merchandiser can erect a substantial price structure and keep it from being undermined.

Discussing business conditions, the general manager stated that reliable statistical information has virtually eliminated the violent business fluctuations of recent years. He urged members to co-operate fully in the compilation of these statistics and added that he hoped to secure shortly a record of plant capacity that would prove of much assistance to the members, with the other data now available at the association headquarters.

Col. Leonard S. Horner, recently appointed president of the Niles-Bement-Pond Co., gave a particularly stirring address on the subject of apprentice work. He believed that an effort should be made not only to make the industry more attractive to technically trained men, but that the industry should be more aggressive than heretofore in going after them. A committee was appointed later to study methods of interesting university students in the machine tool industry's possibilities.

Quantity discounts have no place in the machine tool industry, according to the opinion of those present. Attempts to extend payment terms without the presentation of negotiable paper also were condemned. It was unanimously agreed that the present terms of 30 days net should continue the rule.

The association took steps to curb what was regarded as unfair foreign competition. Various instances were cited of alleged violations on the part

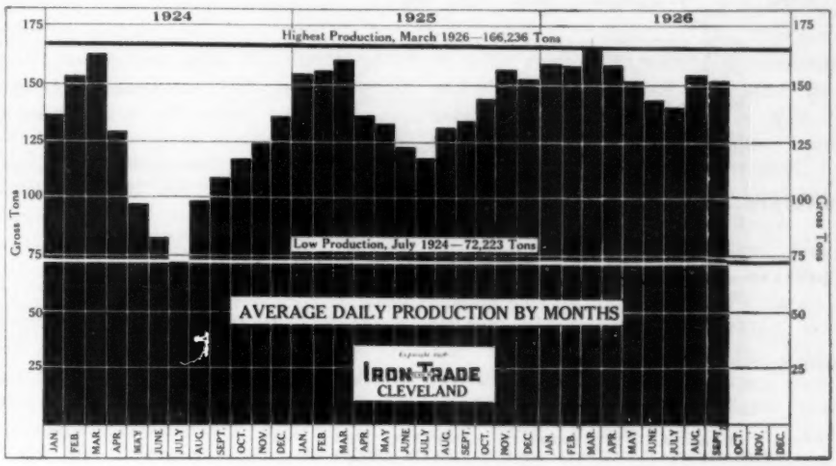
of German machine tool builders. Cases were shown where Germans have copied American machines minutely.

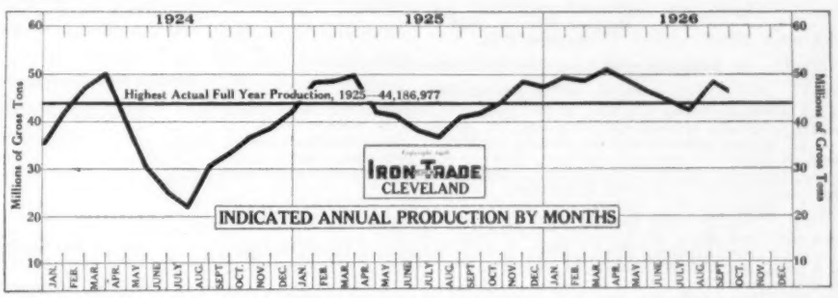
In one instance, a German builder is said to have sold in this country copied machines, with the assurance that repair parts could be had from the American maker whose equipment was copied. Fifty-four companies registered complaints of alleged violations. The association voted to organize a defense group to take legal action.

A recent development in the standardization work of the association is the appointment of a committee to take up the standardization of speeds on constant speed drives of machines. At one large plant, the Gleason Works, Rochester, N. Y., a survey of a portion of the equipment revealed a range of 250 to 1100 revolutions per minute for constant speed drives, with speeds at almost every point in this range. The committee believed that this large number could be reduced to good advantage by formulating a series of standard speeds for such drives.

The tee slot standardization committee has about completed its work. The grinding machine committee is working on standards for pressed steel wheel guards and the radial drill committee on standards of working ranges. The association has now taken up the work on tool holders and tool post openings, milling cutters, spindle noses and machine tapers. The first step also has been taken in the standardization of designations and nomenclature of various classes of tools.

September Ingots in Decline





PRODUCTION of steel ingots in September slipped off somewhat from the high rate attained in August and operations now are back to a point slightly below that of last May. Nevertheless, operations were the highest for any September in history. According to statistics compiled by the American Iron and Steel institute from figures supplied by companies which in 1925 made 94.5 per cent of the country's total, total production in September amounted to 3,930,675 gross tons. Against the 4,004,583 tons of the month before, this was a loss of 73,908 tons. Both months had 26 working days. The highest September total was in 1918.

Average daily output in September was 151,180 tons which also was the highest for any September. As compared with August's rate of 154,022 tons per day, it represented a loss of 2842 tons or 1.8 per cent. On the basis of 151,180 tons per day in September and 311 working days in the year, the indicated annual rate of production was 47,000,000 tons. For August, the indicated annual rate was 47,900,000 tons. Based upon the conutry's theoretical ingot capacity of 55,844,033 gross tons as of Dec. 31, 1925, operations in September represented 84.19 per cent, against 85.78 per cent in August and 78.2 per cent in July.

For the first nine months of 1926, production has totaled 35,846,850 tons, against 32,378,106 tons for the corresponding period of last year. Average daily production so far this year has been 153,849 tons, as compared with 138,962 tons for the same period of 1925.

Steel Ingot Production—1925-26

94.5 Per Cent of Industry Reporting

Gross Tons

1925	Open-hearth	Bessemer	All other	Monthly output companies reporting	Calculated monthly output all companies	No. of working days	Approximate daily output all companies	Change in daily rate per cent
Jan.	3,263,256	689,996	11,960	3,965,212	4,193,281	27	155,307	+13.1
Feb.	2,933,225	602,042	12,998	3,548,265	3,752,352	24	156,348	+ 0.6
Mar.	3,337,721	614,860	13,633	3,966,214	4,194,340	26	161,321	+ 3.1
Apr.	2,858,866	515,715	14,182	3,388,763	3,583,676	26	137,834	—14.5
May	2,755,561	497,708	13,790	3,267,059	3,454,971	26	132,883	— 3.6
June	2,540,729	476,945	12,490	3,030,164	3,204,451	26	123,248	— 7.2
July	2,446,068	457,095	13,547	2,916,710	3,084,472	26	118,634	— 3.7
Aug.	2,698,285	523,734	12,914	3,234,933	3,420,998	26	131,577	+10.9
Sept.	2,738,673	547,121	13,977	3,299,771	3,489,565	26	134,214	+ 2.0
9 mos.	25,572,384	4,925,216	119,491	30,617,091	32,378,106	233	138,962	.....
Oct.	3,077,114	584,567	15,624	3,677,305	3,888,814	27	144,030	+ 7.3
Nov.	3,092,194	581,347	17,085	3,690,626	3,902,900	25	156,116	+ 8.4
Dec.	3,169,796	569,304	15,843	3,754,943	3,970,918	26	152,728	— 2.1
Total	34,911,488	6,660,434	168,043	41,739,965	44,140,738	311	141,932	.....
1926								
Jan.	3,326,846	581,683	13,664	3,922,193	4,150,469	26	159,633	+ 4.5
Feb.	3,023,829	556,031	12,818	3,592,678	3,801,776	24	158,407	— 0.8
Mar.	3,590,791	635,680	15,031	4,241,502	4,488,362	27	166,236	+ 4.9
Apr.	3,282,435	601,037	13,652	3,897,124	4,123,941	26	158,613	— 4.5
May	3,201,230	516,676	10,437	3,728,343	3,945,336	26	151,744	— 4.3
June	3,036,162	498,764	9,441	3,544,367	3,750,653	26	144,256	— 4.9
July	2,911,375	526,500	12,372	3,450,247	3,651,055	26	140,425	— 2.6
Aug.	3,145,055	627,273	12,003	3,784,331	4,004,583	26	154,022	+ 9.7
Sept.	3,089,240	612,588	12,660	3,714,488	3,930,675	26	151,180	— 1.8
9 mos.	28,606,963	5,156,232	112,078	33,875,273	35,846,850	233	153,849	.....

Billet Classifications Revised And Production Costs Considered

(*Concluded from Page* 985)

The steel shall be free from piping and subject to segregation restrictions in chemical composition determined by check analysis from drillings taken at two points in the same section.

The surfaces shall be prepared by chipping or other methods to eliminate visible surface imperfections.

This quality is intended to be used for locomotive driving axles and other large forgings, which are required to be within specified limits of variation in chemical composition in cross sections.

Estimated average cost above base per gross ton.....$10.00

CLASS LFa— When locomotive forging quality is subject to examination of the interior by fracture tests only:

Estimated average additional cost for this requirement per gross ton..... $5.00

CLASS LFb— When locomotive forging quality is subject to deep etching macroscopic or microscopic requirements:

Estimated average additional cost for this requirement per gross ton.....$10.00

(FINAL)

April 15, 1926.

MANUFACTURERS' STANDARD PRACTICE

STANDARD METHODS OF SAMPLING AND PERMISSIBLE VARIATIONS FOR CHECK ANALYSIS OF ROLLED AND FORGED STEEL PRODUCTS

Adopted 1912
Revised Dec. 5, 1924
Revised 1926

Association of American Steel Manufacturers

Facts to be Recognized

1. Different parts of a piece of steel vary in composition. This variation occurs principally between the center and the outside of the piece.

2. When a sufficient number of check analyses have been made on samples properly taken to represent the different portions of a melt, their average compares favorably with the ladle analysis, which is the anaylsis of a small test ingo .aken during the pouring of the melt.

3. From this it is evident:

(a) That the ladle analysis is more representative of the composition of a melt than any single analysis of the finished material.

(b) That drilling for check analysis, to be representative, should be taken at a point intermediate between the outside and the center of the cross-section of the material.

(c) That a sufficient number of pieces should be analyzed to afford a fair average to compare with the ladle anaysis.

Conditions to be Observed

4. Each melt in a lot shall be considered separately, and pieces for sampling shall be taken to represent the melt as fairly as possible.

5. Samples must be drillings or chips cut by some machine tool without the application of water, oil or other lubricant, and shall be free from scale, grease, dirt or other foreign substances. Samples, however taken, shall not contain any surface metal. If samples are taken by drilling, a drill not less than ½ in. nor more than ¾ in. shall be used.

6. Samples must be uniform, well mixed, as fine as possible, and free from dust which causes low carbon values. Chips too coarse to pass a 20-mesh sieve are not recommended, nor long curly drillings which will not pack closely in the carbon run.

7. In referring samples to the manufacturer or other analysts for check analyses, pieces of the full-size section, when possible, should be submitted rather than cuttings, unless the latter are especially requested.

8. Chemical analysis of material that has been subjected to certain operations does not give results which properly represent its orgginal composition. Therefore, samples should be taken from the material in the condition in which it is received from the manufacturer.

Location of Samples

9. When the material is subject to tension test requirements, samples for check analysis shall be taken from the tension test specimens, or as prescribed in Section 10.

10. When the material is not subject to physical test requirements:

(a) For large sections, including blooms, billets, slabs, rounds, squares, shapes, etc., samples shall be taken at any point midway between the outside and the center of the piece by drilling parallel to the axis. In cases where this method is not practicable, the piece may be drilled on the side, but drilling shall not be taken until they represent the portion midway between the outside and the center.

(b) For bored forgings samples shall be taken midway between the inner and outer surfaces of the wall.

(c) For thin material or material of small cross-section, such as plates, shapes, bars, etc., if the previous method is not applicable the samples shall be taken entirely through the material at a point midway between the outside and the center, or by machining off the entire cross-section.

Methods of Analysis

11. Only well known accurate methods of analysis shall be employed. Carbon shall be determined by the combustion method.

Number of Check Analyses

12. (a) Material shall not be subject to rejection for any element or elements unless determinations have been made on the following minimum number of samples from each melt, except as provided in paragraph 12 (b).

3 for 5 tons or less;
4 for over 5 tons to 10 tons;
5 for over 10 tons to 15 tons;
6 for over 15 tons.

(b) If the number of pieces of a melt is less than the number of samples specified in paragraph 12 (a), one sample shall be taken from each piece.

STANDARD PERMISSIBLE VARIATIONS FROM ORDERED LIMITS

I Ordinary Commercial Quality Material Without Special Discard

13. When check analyses are made of the material as furnished, the composition based on the average of all the separate determinations made, may vary from that ordered to the extent permitted in Table I.

Table I

Average Composition	Permissible Variations from Ordered Limits	
Elements	Under Minimum Limit	Over Maximum Limit
Carbon—Maximum limits up to .80 inclusive	.02	.03
Carbon—Maximum limits over .80 to 1.15 inclusive	.03	.04
Carbon—Maximum limits over 1.15	.03	.05
Manganese	.02	.03
Phosphorus	.005	.005
Sulphur	.005	.005
Silicon	.02	.03
Copper	.02	.03

Note: Variations both under and over apply only when a range is specified.

II Forging Quality and Special Discard Material

14. (a) When check analyses are made of the material as furnished, the composition based on the average of all the separate determinations made, may vary from that ordered to the extent permitted in Table II.

Table II

Average Composition	Permissible Variations from Ordered Limits	
Elements	Under Minimum Limit	Over Maximum Limit
Carbon	.02	.02
Manganese	.02	.02
Phosphorus	.005	.005
Sulphur	.005	.005
Silicon	.02	.03
Copper	.02	.03

Note: Variations both under and over apply only when a range is specified.

(b) The composition of individual samples may vary from that order to the extent permitted in Table III, except that the carbon, the manganes and the silicon in the same melt may not vary both above and below the range ordered.

Table III

Individual Samples	Permissible Variations from Ordered Limits	
Elements	Under Minimum Limit	Over Maximum Limit
Carbon—Maximum limits up to .25, inclusive	.02	.03
Carbon—Maximum limits over .25 to .60, inclusive	.03	.04
Carbon—Maximum limits over .60 to 1.15, inclusive	.03	.05
Carbon—Maximum limits over 1.15	.03	.06
Manganese	.05	.05
Phosphorus	.005	.01
Sulphur	.005	.01
Silicon	.02	.05
Copper	.02	.05

Special Permissible Variations from Ordered Limits Forging Quality and Special Discard Material Subject to Special Restrictions on Check Analyses

15. (a) When check analyses are made of the material as furnished, the composition based on the average of all the separate determinations made shall be within the limits ordered.

(b) The composition of individual samples may vary from that ordered to the extent permitted in Table IV, except that the carbon, the manganese and the silicon in the same melt may not vary both above and below the range ordered.

Table IV

Individual Samples	Permissible Variations from Ordered Limits	
Elements	Under Minimum Limit	Over Maximum Limit
Carbon	.02	.02
Manganese	.03	.03
Phosphorus	.005	.005
Sulphur	.005	.005
Silicon	.02	.02
Copper	.02	.02

Discuss Corrosion

At Annual Meeting of American Electrochemical Society

The fiftieth meeting of the American Electrochemical society was held at Hotel Washington, Washington, Oct. 7, 8 and 9 during the course of which H. W. Gillett of the bureau of standards acted as chairman of the symposium on "Materials for Extreme Conditions in the Electrochemical Industries."

Among the papers were included one on "Metals to Resist Corrosion or High Temperatures," by H. J. French; "The Welding of High-Chromium Alloys Intended to Meet Extreme Conditions," by Stanley M. Norwood; "Thermal Insulation of Electric Furnaces," by M. L. Hartmann and O. B. Westmont; "Refractories for Induction Furnaces," by Max Unger; "Refractories for Melt-

ing Pure Metals, Iron, Nickel, Platinum," by Louis Jordan, A. A. Peterson, and L. H. Phelps; and "The Thermal Expansion of Some Fused Oxides Used as Refractories," by G. Merritt.

H. J. French, senior metallurgist, bureau of standards, presented a paper on "Metals to Resist Corrosion or High Temperatures." He discussed some of the principal characteristics and typical applications of commercially pure copper, aluminum, lead, tin, silver, nickel, and iron and alloys.

Among those taking part in the discussion of this paper was W. M. Corse, who told of the staybright experiments which he had seen in England on an automobile, the fittings of the machine having been exposed for almost a year with no corrosion or rust resulting.

Stanley M. Norwood, Union Carbide & Carbon Laboratories, Inc., presented a paper on "The Welding of High-Chromium Alloys Intended to Meet Extreme Conditions." One of the most important problems in the chemical industry, he said, is the design of equipment capable of withstanding the extreme conditions frequently encountered.

In connection with the limited discussion on this paper Dr. Gillette read a discussion prepared by John A. Matthews who was unable to be present. What the author of the paper states about the addition of nickel lowering the resistance of sulphur compounds, said Mr. Matthews, is not in accordance with our experience. In fact, the plain ferronickels of, say, 39.90 per cent nickel are resistant to sulphuric acid and moderately resistant to hydrochloric acid, in which respect they differ remarkably from the straight chromium alloys.

O. B. Westmont, research chemist of the Carborundum Co., presented a paper on "Thermal Insulation of Electric Furnaces." Generally speaking, said Mr. Westmont, the linings of electric furnaces should be made from materials of greater refractoriness than are required in fuel-heated furnaces for the same metallurgical processes. This results either from the fact that higher temperatures actually are used in carrying on the process in the furnace, or that extremely high temperatures are encountered locally because the electrically-produced heat is generated at a higher temperature than is required in the process involved.

Max Unger, electrical engineer, General Electric Co., was unable to be present. Mr. See of that company presented his paper on "Refractories for Induction Furnaces." Of the various materials studied, Mr. See pointed out, magnesium oxide proved to be the one refractory more nearly fulfilling the conditions than any other. Proper grading of the magnesium oxide is very important, he pointed out. Pitch was selected as the best bonding material.

Dr. Gillett next called upon George E. Merritt of the bureau of standards to present his paper on "The Thermal Expansion of Some Fused Oxides Used as Refractories."

Steel Is Romance and Career to Mrs. Lindeblad

WOMEN as exhibitors of domestic products and appliances are not uncommon at food shows and furniture displays, but few ever have entered the industrial field in this role. Few women found anything so absorbing among the exhibits at the recent exposition of the American Society for Steel Treating at Chicago as the booth of the only woman exhibitor. Mrs. Gene Lindeblad, secretary, treasurer and a member of the board of the Kloster Steel Corp., 1036 West Lake street, Chicago, and wife of Einer Lindeblad, president of the company, was that exhibitor. Still under middle age, she is one of the few women steelworks executives of the world, and knows more about the uses, tests, metallurgy and salesmanship of alloy and tool steels and charcoal iron and steel than most of her sex.

The Kloster Steel Corp. is the American organization of the Swedish-American works, at Langshyttan, Sweden, producer of alloy and tool steels and special treatment charcoal iron and steel. Before becoming affiliated with the Kloster corporation, Mrs. Lindeblad, to the iron and steel trade of San Francisco and Chicago, was simply Gene Miller, a

two-fisted steel saleswoman, who made friends wherever she booked business.

As a child in Columbus, O., Miss Miller felt the urge to know about iron, steel and their metallurgy, and her enthusiasm has never waned. Later, while in San Francisco, she became associated in the export and import steel business. Here she developed her sales ability and continued her study of iron and steel. In 1912 she went to Chicago to join the Federal Tool & Alloy Steel Corp., as secretary to the manager. The next year she was district manager of sales, in which position she remained for 12 years, making friends in the industry throughout the district. A year ago, as Mrs. Lindeblad, she entered into a long-term contract with the Swedish-American corporation and now is active in its affairs.

Aside from the study of iron and steel and her work in the industry, Mrs. Lindeblad has few interests. She is president of the auxiliary of the Swedish Club of Chicago and is mildly interested in tennis, but these are as far as her outside hobbies go. In spare time she studies metallurgy as a hobby and her library shelves contain only technical books, business and technical periodicals and her Bible.

She hopes to become a member of the Chicago chapter of the American Society for Steel Treating so that by the next convention she can register as a full-fledged delegate.

Mining and Metallurgical Engineers Sum Up Progress

Meeting in Pittsburgh One of the Most Noteworthy in Institute's History

More Than Thirty Papers Presented in Five Days — Plants Are Visited

DIVERSITY of subject matter characterized the one hundred thirty-fourth general meeting of the American Institute of Mining and Metallurgical Engineers in Pittsburgh, Oct. 5-9. It was the sixth meeting held in Pittsburgh during the 55 years of the organization's existence.

Subjects covered in the 30 or more papers included open-hearth practice and charging and temperature measurements in open-hearth furnaces; refractories; combustibility and testing of coke; coal mining and coke production; bending tests on galvanized sheets; a description of a 14,000-ton hydraulic press; natural gas; by-product ovens; blast furnace efficiency; iron and steel scrap in blast furnace burdens, and the composition of blast furnace slag.

Headquarters were at the Hotel Schenley, and except for the open-hearth conference held at the William Penn hotel, all other sectional and group meetings were held at the Carnegie and Mellon institutes and the United States bureau of mines. At the banquet Friday evening, presided over by President Samuel L. Taylor, the J. E. Johnson prize for the best research on blast furnaces during 1925 was presented to S. P. Kinney, of the United States bureau of mines.

An enjoyable feature Thursday was a steamboat trip up the Monongahela river, luncheon being served on board. Stops were made at the Clairton, Pa., by-product coke plant of the Carnegie Steel Co., at the company's Duquesne, Pa., blast furnaces and mills; and at the National Tube Co.'s plant at McKeesport.

Friday afternoon, several hundred delegates and guests were transported by automobile to the experimental mine and explosive station of the bureau of mines at Bruceton, Pa., where exhibits of apparatus and charts were viewed.

G. E. Kettering, director research department, General Motors Co., Detroit, spoke at the banquet.

Discuss Materials in Making Steel

PENNSYLVANIA produces approximately 24 per cent of the country's supply of bituminous coal and of that amount western Pennsylvania, or the Pittsburgh district, mines about one-half," said President Samuel L. Taylor in his opening remarks on Wednesday at the general session held in Carnegie Music hall. The comparative figures in gross tons for 1876, 1925, and 1923 follow:

	1876	1925	1923
Country	53,280,000	525,000,000	564,157,000
Pennsylvania	12,800,000	128,000,000	171,880,000
Pennsylvania percentage	24	24	30

He said that up to 1920 Pennsylvania produced 690,554,000 tons of coal, approximately 18 tons more than all the rest of the country, which is one of the chief reasons for Pittsburgh's industrial greatness.

In response, Dr. J. S. Unger, chief of the research department, Carnegie Steel Co., called attention to the fact that for each one of Allegheny county's inhabitants, approximately 1,000,000, the Pittsburgh district produced 16 tons of iron and steel in 1925. Dr. Unger cited the need for beneficiation of iron ore, improvement in by-product coking processes and reviewed blast furnace developments, particularly of the past few years when the 500-ton furnace has had its capacity increased practically 50 per cent.

He said that one of the large furnaces has to handle 60 tons of iron ore, 30 tons of coke, 15 tons of limestone and 130 tons of air per hour, and dispose of 30 tons of molten metal, 15 tons of slag and 195 tons of waste gases per hour. He said that approximately 85 per cent of the steel produced is made in open-hearth furnaces of 100 or 125-ton capacity, and that there is need for larger and more efficient regenerators and means to recover the waste heat in the gases.

Loss Is High

He made the statement that 13,000,000 tons of steel is lost annually, approximately one-third of the production of the country, through corrosion, and called attention to advances made in manufacture of rustless stainless steels by the addition of chromium in the mixture, plating of chromium on steel surfaces, and the use of copper, to reduce corrosion.

"Improvement of efficiency in iron-making is to be sought through utilizing some of the latent heat of the carbon monoxide which now passes undeveloped and unused out of the blast furnace top," said Richard Franchot, vice president, Farrell Chemicals, Inc., Washington. He spoke at the iron and steel sectional meeting Friday, at which James Aston, professor of mining and metallurgy, Carnegie Institute of Technology, presided. Mr. Franchot's paper entitled "Specific Efficiency of the Blast Furnace" concluded as follows:

"Inasmuch as the blast furnace is governed by the lay of conservation of energy, disregard of this law in letting all the gas made in keeping the hearth hot pass through the shaft seems to be responsible for most of the operating difficulties as well as the limitation of fuel economy.

"Immense advance has been made on the mechanical side of operation, but the metallurgy of the furnace remains today just where it was two generations ago. It may safely be concluded that improvement can only be effected by way of adjustment of the balance between hearth and shaft. So long as the heat demand of the

hearth necessitates a production of gas carrying an excess of energy over the shaft requirement, there will be unused carbon monoxide, solution loss and a hot top, even if the shaft were a mile high. By withholding gas from the shaft and increasing the burden, a closer balance between work and energy is to be secured. The result is to be an improvement of efficiency in three respects: Increased production, decreased coke consumption, and recovered fixed nitrogen."

The utilization of scrap in the blast furnace burden, if proper attention is given to its chemical composition, physical condition and price, will produce high-grade iron, increase the tonnage and reduce the coke per ton of iron, was the claim made by W. C. McKee, general superintendent, Federal furnace plant of the By-product Coke Corp., Chicago. His paper was entitled "Iron and Steel Scrap in Blast Furnace Burdens." He gave the average comparative results, working the furnace with an all-ore burden and when using 6½ per cent scrap over an 8-month period, as follows:

	With scrap	Without scrap
Tons ore used per day	1,035	1,036
Tons coke burned per day	482	486
Ratio ore to coke	2.15	2.13
Tons iron produced per day	562	515
Tons scrap used per day	68	0
Pounds coke per ton of iron	1,718	1,887

He said that this test was on a merchant furnace making specification iron with silicon averaging 2 per cent and the furnace worked uniformly throughout 16 months. He said further:

"We shall next consider a plant operating for four years on merchant iron, averaging 2 per cent silicon with an all-ore burden and 4½ years with scrap amounting to 10 per cent of the ore burden:

	Four years all-ore burden	Four and one-half years with scrap
Average ratio ore to coke	2.03	2.03
Per cent yield of pig iron	49.0	54.55
Pounds of coke per ton of iron	2,240	1823

"In this case as much ore burden was carried with scrap as without, and the scrap merely increased the iron content of the mixture, thereby reducing the amount of coke required per ton of iron."

In a paper entitled "Composition of Iron Blast Furnace Slags," Richard S. McCaffery, professor of metallurgy, University of Wisconsin, Madison, Wis., presented results obtained in continuation of the work, in connection with which he presented a report to members of the American Iron and Steel institute in October, 1924.

Traces Development in Wrought Iron Industry

AT THE iron and steel group meeting, Wednesday, at which Prof. S. L. Goodale, Pittsburgh, presided, Prof. James Aston presented an important paper entitled "Trend of Development in the Wrought Iron Industry." He discussed the need of wrought iron to fit special requirements of service, and described in brief the Danke furnace of 1879, the Roe, Ford, Ely and Hibbard processes of mechanical puddling. He then outlined the essential features of successful mechanical puddling and the handicaps thereto.

R. H. Foster, Electro Metallurgical Sales Corp., New York, read a description of the largest hydraulic forging press produced for forging armor for the government during the war, as well as for bending and rectifying armor plate, and for forging ingots for large caliber guns. The paper was prepared by W. J. Priestley, vice president, Electro Metallurgical Sales Corp., who formerly was steel superintendent of the navy ordnance plant.

The following tabulation gives the principal dimensions and weights of the press which was built by the Mesta Machine Co., Pittsburgh:

Maximum capacity, three cylinders, 14,000 gross tons.

Intermediate capacity, two outside cylinders, 9,000 gross tons.

Minimum capacity, one middle cylinder, 4,000 gross tons.

Total stroke for forging ram, 7 feet, 6 inches.

Diameter of columns, 30 inches.

Distance of column centers, 19 feet x 8 feet, 6 inches.

Clear distance between column guards, 16 feet x 5 feet, 6 inches.

Hydraulic pressure for main cylinders, 7000 pounds per square inch.

H. A. Stacy, bureau of yards and docks, navy department, Washington, described bend tests of galvanized sheet steel conducted by a subcommittee of the federal specifications board to obtain the following: Minimum mandrel thickness expressed in terms of thickness of the sheet tested, over which sheets with different weights of coating could be bent 180 degrees without serious damage to the coating; minimum radius of curvature on the inside of the angle in 90 degrees bends in such material; effect of double seaming on the coating; and uniformly in thickness of coating over a sheet, particularly as relates to the results of bend tests.

Reports on Refractories

B. M. Larsen, assistant metallurgist, Pittsburgh experiment station, United States bureau of mines, presented a progress report on the effect of the open-hearth process on refractories prepared by F. W. Schroeder, assistant chemist of that organization and himself. He also gave a brief abstract of a paper on "Optical Temperature Measurements in the Open-hearth Furnace," prepared by himself, assisted by J. W. Campbell, research fellow, Carnegie Institute of Technology.

The fourth meeting of the open-hearth committee of the institute was held Tuesday in the William Penn hotel, with E. A. Whitworth, Gath-Mann Engineering Co., Baltimore, presiding. At this meeting, R. L. Cain, open-hearth superintendent, Bourne-Fuller Co., Cleveland, presented a paper entitled "The Manufacture of Forging Steel by the Basic Open-Hearth Process." He considered the character of the charge, the working of the heat, the tapping and ladle additions, teeming and metallurgy, and emphasized that heats of steel made properly and using correct charges will give little trouble as regards defective billets. He said:

"The charge must be one which will offer as little resistance as possible to the correct manufacture of the steel. Scrap can be classified and controlled within reasonable limits."

At the afternoon session, Paul S. Shaeffer, Canton, O., who recently resigned as open-hearth superintendent of the United Alloy Steel Corp., read a paper on "The Basic Open-Hearth Charge." He described various methods of charging, bringing out the relation of light and heavy scrap to iron charged for the desired carbon content. Pig iron analysis which most steelmakers agree on as producing the best grades of steel follows:

	Per cent
Manganese	1.75 to 2.20
Silicon	0.85 to 1.30
Sulphur	Under 0.05
Phosphorus	Under 0.25

Wednesday morning at the Bureau of Mines building, M. C. Booze delivered an address on "Checker Brick and Their Service." He was followed by G. M. Demorest who spoke on "The Effect of the Refractories on Steelmaking." C. J. Herty Jr. read a paper on "The Absorption of Sulphur During Melting in the Open-Hearth Furnace," and Mr. Herty and J. M. Gaines Jr., presented a paper on "The Desulphurization Action of Manganese in Iron."

British and Germans Negotiate

Leading Industrialists Confer in London for "Economic Co-operation"; Outcome Undecided—Government Commandeers Coal, Steel Famine More Acute—Order for 250,000 Boxes of Tin Plate Placed

2-3 Caxton House, Westminster, S. W.1
European Headquarters,
IRON TRADE REVIEW,

LONDON, Oct. 12.—(*By Cable*)—Leading British and German industrialists met informally here this week at the residence of the minister of transport to lay the foundation for future economic co-operation. The extent and form that this will take is not definite. Great Britain is not a member of the new European steel cartel, but Britain's needs for iron and steel are increasing as the coal strike is protracted. Some announcement may be made at an early date.

The British government is commandeering coal supplies for domestic and institutional purposes, and the famine in coke, pig iron, and steel is more acute, closing more manufacturing plants, and slowing the work of others. Certain grades of steel are unobtainable in the current market.

Pig iron production in France to the end of October is covered by contracts for delivery to Birmingham. Deliveries on new orders for steel from the Continent are deferred eight weeks. Some producers are not in a position to make shipments under ten weeks.

The Staveley Coal & Iron Co. Ltd. has booked an order for 10,000 tons of cast iron pipe for Cairo, Egypt. An export order for 250,000 boxes of tin plate has been divided. Continental exports are active and prices higher.

Britain Finds Cartel Limits Its Steel Buying

Office of IRON TRADE REVIEW.
Prince's Chambers, Corporation St.

BIRMINGHAM, Eng., Oct. 1.—(*European Staff Service*)—From the consumer's point of view, the signing of the European cartel has already had important results. One telegram was promptly despatched from Brussels to Birmingham combining the announcement of the completed combine with an instruction to the important agent to quote sheet bars at £6 12s ($32.00) and 2-inch billets at £6 5s 6d ($30.43) delivered in Birmingham. It is now difficult to get Continental orders accepted. Germany, in particular, generally gives excuses when semifinished steel business is offered, although there is no objection to taking orders for finished steel, and large quantities of cold rolled material are regularly being received. Some fortunate buyers of Belgian billets, who placed orders some time ago, are getting deliveries at £5 5s ($25.46) in Birmingham.

Sterling $4.85

Buyers show much more interest in the market, and as there are signs of firm, and, possibly, advancing prices, orders are given out more freely. The most noticeable change is in the wrought iron industry which has been almost at a standstill through the high price of fuel. Works able to sell competitively through the use of coal from their own pits have something like six months orders in hand.

The price of British steel has been advanced. Most plates cost 10s ($2.42) more than a fortnight ago, and delivery is not to be expected earlier than six to eight weeks after the strike ends. This, with the shrinkage in Continental supplies, seems to promise a period of fairly high prices. A marked increase in orders for gal-

Current Iron and Steel Prices of Europe

Dollars at Rates of Exchange, Oct. 11	*British* Gross Tons U. K. Ports		*French* Metric Tons Channel Ports		*Belgium and Luxemburg* Metric Tons Channel Ports		*German* Metric Tons Rotterdam or North Sea Port	
Export Prices f. o. b. Ship at Port of Dispatch—By Cable								
PIG IRON	£ s d		£ s d		£ s d		£ s d	
Foundry No. 3, Silicon 2.50-3.00	$27.89	5 15 0*	$18.19	3 15 0	$18.19	3 15 0	$17.46	3 12 0
Basic	23.04	4 15 0	18.79	3 17 6	18.79	3 17 6	16.98	3 10 0
Basic-bessemer	24.25	5 0 0†	16.49	3 8 0	16.49	3 8 0	18.19	3 15 0
Hematite, Phosphorus 0.02-0.05	22.43	4 12 6	21.02	730*	.....	.....	20.61	4 5 0
SEMIFINISHED STEEL								
Billets	$32.74	6 15 0	$25.46	5 5 0	$25.46	5 5 0	$23.28	4 16 0
Wire rods	43.65	9 0 0	29.10	6 0 0	29.10	6 0 0	29.10	6 0 0
FINISHED STEEL								
Standard rails	$37.49	7 15 0	$29.10	6 0 0	$29.10	6 0 0	$29.10	6 0 0
Merchant bars	1.73c	8 0 0	1.27c	5 15 0	1.27c	5 15 0	1.16c	5 5 0
Structural shapes	1.46c	6 15 0	1.24c	5 12 6	1.24c	5 12 6	1.10c	5 0 0
Plates, ship, bridge and tank	1.62c	7 10 0	1.38c	6 5 0	1.38c	6 5 0	1.30c	5 18 0
Sheets, black, 24 gage	2.38c	11 0 0	2.53c	11 10 0	2.53c	11 10 0	2.48c	11 5 0
Sheets, galvanized, 24 gage, corrugated	3.63c	16 15 0	3.64c	2,800*	4.85c	3,850*	3.63c	16 10 0
Bands and strips	2.17c	10 0 0	1.49c	6 15 0	1.49c	6 15 0	1.49c	6 15 0
Plain wire, base	2.11c	9 15 0	2.08c	1,600*	1.51c	6 17 6	1.43c	6 10 0
Galvanized wire, base	2.76c	12 15 0	2.86c	2,200*	1.98c	9 0 0	1.90c	8 13 0
Wire nails, base	2.07c	9 10 0	2.41c	1,850*	1.68c	7 12 6	1.64c	7 9 0
Tin plate, base box 108 pounds	$ 9.09	1 17 6	.....	.....	.....	.....	$ 6.79	1 8 0
*Francs								
Domestic Prices at Works or Furnace—Last Reported			Francs		Francs		Marks	
Foundry No. 3 Pig Iron, Silicon 2.50—3.00	$22.67	4 13 6	$17.28	600(2)	$17.10	615	$19.55	85
Basic pig iron	21.83	4 10 0	16.99	590(1)	16.96	610	20.24	88
Furnace coke	8.49	1 15 0	5.59	194	5.98	215	4.95	21.50
Billets	30.31	6 5 0	21.74	755	21.82	785	27.37	119
Standard rails	1.79c	8 5 0	1.17c	900	1.26c	1,000	1.46c	140
Merchant bars	1.73c	8 0 0	1.27c	975	1.25c	990	1.40c	134
Shapes	1.62c	7 10 0	1.20c	925	1.20c	950	1.37c	131
Plates, ship, bridge and tank	1.84c	8 10 0	1.37c	1,050	1.61c	1,275	1.55c	149
Sheets, black, 24 gage	2.38c	11 0 0	2.47c	1,900	2.33c	1,850	2.14c	205
Sheets, galvanized 24 gage, corrugated	3.63c	16 15 0	3.58c	2,750	3.91c	3,100	3.96c	380
Plain wire	2.22c	10 5 0	1.95c	1,500	1.89c	1,500	2.03c	195
Bands and Strips	2.27c	10 10 0	1.50c	1,150	1.51c	1,200	1.62c	155

*Middlesbrough; †Scotch foundry iron; (1) Basic-bessemer; (2) Longwy. British export furnace coke £2 10s 0d ($12.13) f. o. b. Ferromanganese £14 0s 0d ($67.90) f. o. b. German ferromanganese £13 0s 0d ($63.05) f. o. b.

The equivalent prices in American currency are in dollars per ton for pig iron, coke, semi-finished steel and rails; finished steel is quoted in cents per pound and tin plate in dollars per box. British quotations are for basic open-hearth steel; French, Belgian, Luxemburg and German are for basic-bessemer steel.

vanized sheets has taken place during the past week, and inquiries are more numerous. India is in the market for good lots, but so far has shown reluctance to pay the higher prices now demanded. Yet it is believed that the higher price of sheet bars will further advance selling prices, until an approach to normal in supplies of fuel and semifinished material check the upward movement.

The tin plate trade shows a decided improvement in inquiry and a buying movement has commenced. A fair amount of business has been placed for delivery in the latter part of the year at £1 1s 3d ($5.16). Some fairly good contracts have also been given out for the first quarter of next year, these orders being accepted at £1 0s 6d ($3.97). Manufacturers are taking more foreign fuel, and the output is about 50 per cent capacity. The Llanelly Steel Co. has 200 men engaged preparing the site and laying foundations for four new sheet mills in connection with their steel works, and a good deal of plant improvement and extension is going on in preparation for an active period.

The scrap trade continues almost stagnant. Mountains of scrap are talked about at engineering works, some firms having sold practically no scrap throughout the strike. Accumulations are also rather heavy at some steelworks, where occasional purchases have been made at what were regarded as bargain prices. A few steelworks which had recommenced are running through their stocks of scrap, and a revival of buying is looked for shortly.

The iron and steel position has changed somewhat for the better, following the coal developments. The general impression is that the strike is on the eve of collapse, the usual interpretation placed upon yesterday's reference of government terms to the coal districts, for decision within a week, being that this is a hint to the workmen to act for themselves. The fact that an additional 7000 men reentered the pits yesterday bringing the total up to 150,000 is a pointer not to be misunderstood. This may develop within the next few days into a debacle.

The most important feature of this return to work is that it now includes Yorkshire, Lancashire and South Wales, which are the most important sources of fuel for blast furnaces and steelworks. Increase in these districts will have an immediate effect on the iron and steel trade, although some time will be necessary to get the coke ovens in operation to supply blast furnace coke. It is significant that more steel furnaces have started in South Wales, and the Cargo Fleet and Dorman Long mills are each turning out 300 tons of steel daily. All the steelworks have good order books, and are certain to recommence operations at the earliest moment, to take advantage of the present high prices.

In regard to pig iron, the position has become critical, a real famine having developed, pig iron being impossible to buy by many consumers. Only one furnace in Cleveland is making pig iron for sale and stocks are so nearly exhausted that a second advance within a week of 5s ($1.21) per ton has been made for No. 3 Cleveland G. M. B., making the price £5 2s 6d ($24.85) as compared with the prestrike figure of £3 10s ($16.97). One European customer has today paid £5 10s ($26.67) for a parcel. No Midland brands of pig iron are to be had, and Scotch and West coast irons have both become scarce, the former being quoted at £4 15s ($23.04) for No. 3, and the latter at £4 4s 6d ($20.49). Coke is difficult to obtain, and prices are now more than double the prewar figure.

In Birmingham the scarcity is acute. Supplies have to be taken in small quantities from Middlesbrough, costing over £6 ($29.10) when delivered. It is understood that no more French pig iron is due for arrival until the end of the month, and it is quite likely that some foundries will have to cease operations, bringing about a stoppage of allied engineering works, through exhaustion of supplies, quite apart from any question of price.

The fuel situation has been greatly aggravated by the issue of a mines order giving preference to domestic and institutional users of fuel, as well as to all industries having to do with food supplies. General manufacturers have not even received the compliment of mention in the order, and this was felt so keenly in Birmingham that a deputation has already waited upon the mines department to point out the extreme gravity of this new move. This district loses the advantage of the lead taken in the reopening of pits, and it is likely enough that many of the steel rollers will be brought to a standstill within the next week or so. Builders of rolling stock in Birmingham, who have many months orders on their books, are reduced to three days per week through the exhaustion of steel supplies. It is remarkable that so many steel structures have avoided interruption; but some of these may have to be suspended. In a few cases where orders are urgent, the contractors have authorized engineers to modify designs in order to utilize such steel as may happen to be available, but there are obvious limitations to these possibilities.

Some engineers who have employed foreign steel for the first time go so far as to assert that no permanent business will be added to the Continental steelworks, to the order of British engineers. One phrase used in that the foreign steel has been tried and found wanting. A prominent engineer states that he would not expect Belgian steel to stand the strain of more than 6¼ tons per inch as compared with the recognized figure of 7½ tons for British steel. It is admitted, however, that the margin of safety, if allied with a great disparity in price, will probably lead to preference being given to the foreigner.

German Exports Gain

Berlin, Sept. 28.—(*European Staff Service*)—Germany's exports of iron and steel products for July showed an increased of 43,586 tons compared with the exports of the preceding month. Exports in July amounted to 466,680 metric tons compared with 423,094 tons in June, 400,645 tons in May, 391,172 tons in January, and 264,433 tons in July 1925. The shipments in July were the highest recorded in any month during the past five years. Among the principal items exported in July were 111,554 tons of bars and bands, 57,615 tons of blooms, billets, and sheets bars, 45,730 tons of plates and sheets, 43,546 tons of rails and track fastenings, 33,083 tons of rolled and drawn wire ,and 31,635 tons of pig iron.

German imports in July amounted to 97,966 metric tons compared with 105,052 tons in June, 88,189 tons in May, 67,597 tons in January, and 132,692 tons in July 1925. Among the principal items imported in July were 32,908 tons of bars and bands, 18,453 tons of blooms, billets and sheet. bars, 12,240 tons of scrap and 9490 tons of pig iron.

British Export Prices Up

London, Oct. 1—(*European Staff Service*)—Board of trade returns for August, 1926, give the average British export prices per gross ton for a certain number of iron and steel products. These prices are compiled from actual contracts which were made several months ago and this accounts for the difference between these quotations and the base prices regularly quoted.

The following table shows the price of each of the seven principal commodities exported from Great Britain. Compared with those prevailing in the corresponding period of 1925 and in July this year, prices generally were higher.

Foundry pig iron was £1 1s ($5.09) more than in July this year and 4s 3d ($1.02) more than in August, 1925. Ferroalloys were £4 3s ($20.12) less than in July this year and £4 18s 10d ($23.92) less than in August, 1925. Carbon billets were £1 7s ($6.73) more than in July this year and £2 17s ($13.78) more than in August, 1925. Beams were £3 1s 3d ($14.85) more than in July this year and £3 9s ($16.71) more than in August, 1925. Galvanized sheets were 6s 1d ($1.46) less than in July this year and 17s 7d ($4.22) less than in August, 1925. Tinplates were 16s 7d ($3.98) more than in July this year and 17s 7d ($4.22) more than in August, 1925. Plates were 15s 7d ($3.74) more than in July this year and £2 9s 7d ($12.00) more than in August, 1925.

	£	s	d	$
Foundry pig iron	4	15	0	23.00
Ferroalloys	10	7	2	50.22
Carbon billets	15	0	0	72.75
Beams	12	6	0	59.64
Galvanized sheets	18	4	0	88.26
Tinplate	22	11	9	109.52
Plates	12	6	0	59.64

At the wire division of the Ford Motor Co., Detroit only tin of the highest quality is used for coating the products. The heat required to maintain the tinning bath at the proper temperature causes a certain portion of the copper from the wire to be melted. This soon alloys with the tin and increases the melting point of the coating material. When this occurs the tin bath is replaced. Sufficient copper is added to the discarded copper-bearing material to make it conform to the composition for brass and this in turn is used for various parts of the Ford car.

Industrial Men in the Day's News

Thomas W. Kennedy, Manager of New England's First Coke Blast Furnace

FROM a farmer boy in Pennsylvania to manager of New England's first coke blast furnace he has advanced steadily in industrial prominence.

ONE of seven brothers, six of whom are associated with the iron and steel industry, he has been active in blast furnace building and operation.

GOLF is his chief hobby, but he retains his early affection for fine cattle and horses, and has enjoyed frequent visits to his father's farm.

BORN into a family of blast furnace builders, it was little wonder that Thomas W. Kennedy grew up to be a builder and operator of blast furnaces. His father, Thomas W. Kennedy Sr., who was one of the pioneer furnace builders in this country, in 1869 built at Sharpsville, Pa., for the Mt. Hickory Iron Co. what is thought to have been the first steel stack in the United States. After this Mr. Kennedy Sr. built and operated several other furnaces, and yet found time to work on a large farm which he owned at Lowellville, O.

It was on this farm that Mr. Kennedy Jr. was born and raised. He was the youngest of seven brothers, six of whom have been active in the design, construction and operation of blast furnaces.

Mr. Kennedy graduated from Westminster college in Wilmington, Pa., in 1891, and soon afterward went to work for the Isabella Furnace Co. at Aetna, Pa. Here during a period of ten years he held successively the positions of assistant chemist, chemist and superintendent, and then left to build the Adrian furnace at Dubois, Pa. This furnace, which was designed by his brother, Julian Kennedy, was one of the first of the so-called modern furnaces provided with a top and positive air feed.

For 18 years Mr. Kennedy operated this furnace. During this period he occasionally slipped away to work on his father's farm. He also was active in many interests connected with the country's rapidly developing iron and steel industry. In 1912 he was instrumental in bringing about the purchase of the furnace at Punxatawney, Pa., from Rogers Brown interests.

Mr. Kennedy, although a modest man, shunning publicity wherever possible, is nevertheless known to a wide circle of men in the industry of his choosing, by nearly all of whom he is affectionately called "Tom." When confronted with some particularly notable achievement, he usually disclaims any credit, and points to the work of his associates. Recently, when President Coolidge at Washington pressed the button that lighted the furnace just completed at Everett, Mass., the builder of the furnace was on the job, but later, when speeches were being made and his praises were being sung, "Tom" Kennedy was nowhere to be found.

His early training on the farm still is seen in his habit of getting to his office regularly about eight o'clock, and of working hard when he works. During recent years he has become a golf enthusiast. On sunny afternoons, when his day's work has been completed, he may now be found on one of the many courses in greater Boston. He lives in Brookline, Mass., and has two children, a boy and a girl. The girl, Georgia Kennedy, had the honor of christening her father's latest achievement, the construction of the first blast furnace of the Mystic Iron Works, Everett, Mass.

Mr. Kennedy is now vice president and general manager of the Mystic Iron Works.

Men of Industry

Personal News of a Business Character Pertaining to the Iron and Steel and Related Fields of Enterprise

WILLIAM McLAUCHLAN, in honor of whom the bulk freighter launched Oct. 7 for the Interlake Steamship Co. was named, started in the shipping business in 1873 with the Cleveland Iron Mining Co., Cleveland. Ten years later he joined Col. James Pick-

WILLIAM McLAUCHLAN

ands and Samuel Mather who were then organizing the firm of Pickands, Mather & Co. He retired from the firm, in which he was a partner, in 1918.

* * *

E. J. Kulas, president of the Otis Steel Co., Cleveland, has left on a pleasure trip to Europe, to return in six or seven weeks.

* * *

Ralph W. Clark, vice president of Pilling & Co., Philadelphia, in charge of its New York office, returned Oct. 4 on the MINNEWASKA from a trip to Europe.

* * *

Hale J. Denny has been appointed a member of the sales force of Bridgeport Brass Co., Bridgeport, Conn. He will be located at the Chicago office under R. M. Hubler, Chicago district manager.

* * *

Frank B. Ungar, recently appointed assistant to the general manager of sales for the Ludlow-Saylor Wire Co., St. Louis, manufacturer of woven wire products, formerly had been Chicago representative, and for 26 years in its sales organization.

* * *

Milton Greenberger has been made president of the Steel Mill Products Co., Chicago, recently organized to act as sales representative for steel mills there. He had been connected for 17 years with Theodore Geissman & Co., Chicago.

* * *

T. H. Kane, who recently was made president of the Berger Mfg. Co., Canton, O., structural steel fabricating subsidiary of the Central Alloy Steel Corp., Massillon, O., formerly had been vice president and general manager of the Truscon Steel Co., Youngstown, O.

* * *

E. W. Wolfstyn has been appointed credit manager of the Pittsburgh distributing branch of the Graybar Electric Co., New York. He formerly was assistant general credit manager of the supply department of the Western Electric Co., which department was incorporated as the Graybar company.

* * *

Owen R. Rice, formerly assistant blast furnace superintendent, Maryland plant, Bethlehem Steel Corp., has resigned to become associated with the Freyn Engineering Co., Chicago, as an assistant in blast furnace and metallurgical work. Following graduation from Lehigh university, Bethlehem, Pa., in chemical engineering in 1917, Mr. Rice became connected with the Maryland works of the Bethlehem corporation as blast furnace metallurgical assistant and recently conducted there a school of instruction in coke oven operation.

* * *

Ollie Needham, recently was made engineer in charge of steel mill engineering for Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., as announced in IRON TRADE REVIEW, Sept. 23. He was born in Pottsboro, Tex., but received his education in Oklahoma. Following graduation from the Oklahoma Agricultural and Mechanical college in electrical engineering in 1909 he entered the apprentice course of the Westinghouse company. After six months in the motor engineering department and four years in testing work he was transferred to the steel mill section of the general engineering department, where he has since remained, handling the

OLLIE NEEDHAM

applications of electricity in steel mills.

Mr. Needham is a member of the Association of Iron and Steel Electrical Engineers and the American Institute of Electrical Engineers and has presented papers before both of these associations on different occasions.

* * *

Sir Alfred Mond, chairman of the board of the Mond Nickel Co., Ltd., London; Brunner, Bond & Co., London; Victoria Syndicate, Ltd., of Canada, Henry Wiggins & Co., London, and the Amalgamated Anthracite Co., Swansea, South Wales, has returned to England after a month's visit in the United States and Canada. During this trip, Sir Alfred, accompanied by Robert, Emile and Philip Mond, also of the Mond Nickel Co., visited the company's ore properties in the Sudbury area of Ontario, the smelter at Coniston, Ont.,

and the recently formed subsidiary for the United States, the American Nickel Corp., Clearfield, Pa. The subsidiary company is entering into the manufacture of nickel products, including rods, bars, sheets, tubes, wire and castings of pure nickel as well as other alloys.

* * *

L. C. Wilson, newly elected director of the American Foundrymen's association for 1926-1928, as announced recently in IRON TRADE REVIEW, obtained his preparatory education in the schools of New Haven, Conn. and his technical training in the Sheffield Scientific school of Yale university. He was graduated from Yale in 1907 and then entered the sales department

L. C. WILSON

of the Harbison-Walker Refractories Co., representing this company over a period of years in its Pittsburgh, Chicago, New York and New England districts. Later he joined the staff of the Chain Belt Co., Milwaukee, as assistant to the vice president, later being made general sales manager. Transferring to the Federal Malleable Co., Milwaukee as secretary, Mr. Wilson was later elected vice president and general manager which position he retains.

* * *

R. C. Harvey has been appointed representative in Alabama, Florida and Georgia for the Ohio Injector Co., Wadsworth, O., manufacturer of valves, lubricators and steam specialties. His headquarters will be at Atlanta, his temporary address being Winecoff hotel, that city.

* * *

E. J. Lavino, president of E. J. Lavino & Co., Philadelphia, was to return Oct. 9, from a trip to England.

* * *

W. E. Loy, superintendent of the Vaile-Kimes Co., Dayton, O., has resigned to accept a position with the Reynolds Spring Co., Jackson, Mich.

* * *

R. B. Lemay for the past 19 years connected with the Sloss-Sheffield Steel & Iron Co., Sheffield, Ala., and for the past few years superintendent at the furnaces there has been brought to the general offices in Birmingham and promoted to the position of assistant to J. P. Dovel, vice president in charge of operation of blast furnaces.

* * *

Gerard Swope, president of the General Electric Co., Schenectady, N. Y., is president of the newly organized National Electric Manufacturers' association.

* * *

Elias Jenkins has been made secretary of the Western Sheet and Tin Plate Manufacturers association, occupying the position formerly held by the late James H. Nutt. Mr. Jenkins entered the steel industry at the age of 9 years, but for the past 17 years has been in the insurance business.

For 35 years he had been in valley steel mills. For 10 years he served as trustee of thte Amalgamated Association of Iron, Steel and Tin Workers.

* * *

Vernon C. Ward, Chicago has been made manager of the new junior beam department of the Jones & Laughlin Steel Corp., Pittsburgh. The rapidly expanding market for this new products, which is a rolled steel, light weight structural section, has made the expansion of the junior beam sales department a necessity. Mr. Ward for the past 17 years has been contracting engineer for the American Bridge Co. in Chicago and has a long experience in the marketing of structural material. For the past 23 years he has been closely associated with United States Steel Corp. subsidiaries in various capacities. Mr. Ward was born in Columbus, O., in 1881 and was graduated with the degree of mechanical engineer from the Ohio State university in 1903. He is a director of the Chicago Engineers club, and of the Intercollegiate Conference Athletic association, and a member of the University club of Evanston, Ill.

Obituaries

THOMAS H. KANE, whose recent appointment as president of the Berger Mfg. Co., Canton, O., subsidiary of the Central Alloy Steel Corp., Massillon, O., is announced on the "Men of Industry" page of this issue, died Oct. 11 at a hospital in Youngstown. He was waiting for word from the operating room where his wife was, when he was seized by a heart attack from which he did not recover.

* * *

Oscar C. Lane, for 30 years in charge of sales for Reed & Barton Co., Taunton, Mass., manufacturer of core metal products, died recently at his home in Winchester, Mass.

* * *

Robert S. Rodgers, secretary and general manager of the American Seeding Machine Co., Springfield, O., died Oct. 3 at a hospital in Baltimore, at the age of 53. He was a director of the First National bank and American Trust & Savings bank in Springfield.

* * *

Clermont Harvey Wilcox, president of the New York Insulated Wire Co., New York, died recently in that city at the age of 76. The New York company was one of the first to manufacture insulated wire. Mr. Wilcox was head of Wilcox & Co., New York, brokerage house for many years, and was vice president and a trustee of the Union Dime Savings bank.

* * *

Harry V. Dimmick, aged 50, vice president of the American Casting Co., Birmingham, died recently. He was in the steel business for years, starting as purchasing agent of the Grand Crossing Tack Co., Chicago, and later with the Keystone Steel & Wire Co. Peoria, Ill. He went to Birmingham five years ago, joining his brother, Dan B. Dimmick, in the casting concern.

* * *

George A. Rigby, aged 58 years, superintendent of the Carnegie Steel Co. works at New Castle, Pa., shot and killed himself Oct. 8. Mr. Rigby joined the Steel corporation subsidiary when it acquired in 1920 the National Steel Co. of New Castle. He started in the steel business as a machinist's apprentice. Mr. Rigby was one of the most prominent civic leaders of New Castle. He had been ill for five years.

Machinery

Improvement in Demand Noted in Past Week—Railroads Buying More Freely—Large Lists Remain Out

ALTHOUGH machine tool buying generally continues restricted, sellers report improvement in the past week. Large railroad programs are not active, but miscellaneous purchases make a good total. About 18 tools, including several car wheel borers, were sold to railroads this past week by eastern builders. Slackening is general in the New England market. One Chicago dealer reports the best week in the history of its company, but buying in general in that district remains slow. Carnegie Steel Co.'s award of eight cranes for its warehouse at Houston, Tex., features that market. Sales of light locomotive cranes at Chicago are fair. A number of new inquiries for cranes are out in the Pittsburgh district.

New York, Oct. 12.—Machine tool buying continues restricted, with little fresh inquiry. Railroad orders are slightly more numerous than a week ago. New York Central has closed on a 4-foot radial drill to the Niles-Bement-Pond Co. and on a 50-ton hydraulic bushing press to Manning, Maxwell & Moore. This latter builder also has booked two double head axle lathes, one 90-inch driving wheel lathe and two journal burnishing lathes for the New York, New Haven & Hartford. The leading pending list is the New York Rapid Transit inquiry, on which action has long been delayed. Crane demand is exceedingly light.

The Pullman Car & Mfg. Corp. has closed on two car wheel lathes to the Niles company and one journal axle lathe to Manning. Elgin, Joliet & Eastern has ordered one micro cylinder grinder, the Santa Fe two 14-inch portable lathes and the Missouri Pacific two forging machines, one mud ring and flue sheet drill, one 2-inch dull head bolt cutter and one mortiser and boring machine, all going to Manning. The Rock Island has closed on a 48-inch car wheel borer and the Illinois Central on a 2-foot plate flanging clamp, both orders going to Niles. This last railroad continues in the market for one 6-inch and one 2-inch pipe threading machine and one 2-inch pipe nipple making machine.

Industrial buying includes a 7-foot horizontal and vertical turning mill for a company at Ridgeway, Pa.; a 48-inch x 10-foot planer for the Delco interest at Dayton, O.; a 3-foot radial drill for a steel company in the Chicago district, a 5-foot radial drill for a Detroit automotive company and a 2½-foot radial drill for a concern in Newark, all going to the Niles-Bement-Pond Co.

Orders booked by the Pratt & Whitney Mfg. Co. include a 16-foot geared head lathe for Decatur, Ill., a cylinder machine for Fort Wayne, Ind., and another for a gas and electric company at San Francisco.

Pittsburgh, Oct. 12.—While machine tools have been quiet, more activity is noted in connection with cranes. Carnegie Steel Co. has closed on eight cranes for its Houston, Tex., warehouse, but defers action on its machine tool list. Westinghouse Electric & Mfg. Co. is getting ready to distribute orders on its large machine tool list for various plants, and one or two other lists, including equipment for a trade school, still are pending. A number of new inquiries for cranes are out.

Boston, Oct. 12.—Slight slackening in machine tool sales developed in the past week but inquiry continues attractive, and most tool makers in the district are increasing production. Bethlehem Shipbuilding Co. bought a large horizontal boring mill and a large face grinder and is in the market for other heavy equipment for its Fore River, Mass., plant.

Chicago, Oct. 12.—Buying in the machine tool market here has been slow but better than the previous week. One local dealer reports the best week in the history of the company, but generally machine tools sales have been light. No action has been taken as yet on the Illinois Steel Co. and Pullman Car & Mfg. Corp. lists, but a jig borer and a 16-inch lathe have been purchased by the General Electric Co. for the Fort Wayne, Ind., plant from Pratt & Whitney Mfg. Co. Inquiry generally is substantial and should turn October into a good month. The sanitary district of Cook county is seeking lathes, drill press, milling machine and other tools for maintenance shop at the Niles, Ill., disposal station. Agricultural implement makers also are fairly active in the tool market, the International Harvester Co. having bought drills, grinders and a few other items for Fort Wayne, Ind. Rumors are rife of probable increases in the price of certain lines of equipment. The Chicago crane market, being extremely competitive, varies in activity between types of equipment and individual companies. Sales of light locomotive cranes are in substantial volume, but the heavier capacities are in less demand. Electric overhead equipment still is experiencing a lull in buying.

Cleveland, Oct. 12.—Slight improvement in the machine tool market was noted locally in the past week over the first six or seven days of the month. No action has been taken yet on the three lathes for Cleveland Heights high school. Neither automotive nor railroad buying in this district is strong. Miscellaneous demands from general manufacturing lines comprises most of current activity. One seller claims small lot business is more prevalent now than any time within the past several months. Another distributor had several good sales the past week, one including 8 to 10 machines, and several others of 3 or 4 tools each. A local manufacturer reports increased activity in export demand, its French agents having ordered around a dozen tools for replacement purposes within the past several weeks.

Cleveland Planer Co. has sold a 36-inch open-side planer to the Watts Laundry Machinery Co., St. Joseph, Mich., and a 48-inch planer to a New Orleans interest. The former was sold off the floor of the Steel Treaters' show and the latter order taken at the same exposition.

CRANE ORDERS PLACED

Eight cranes including four 5-ton with 75-foot span, three 10-ton with 75-foot span, and one 10-ton with 80-foot span for the Carnegie Steel Co., Houston, Tex., warehouse, to the Cleveland Crane & Engineering Co.

Two 150-ton electric cranes, 60-foot span, for the Southern California Edison Electric Co., Los Angeles, to the Shaw Electric Crane Co.

Two electric trolleys, one of 10 tons capacity and the other of 20 tons, for the Ridgeway Dynamo & Engine Co., Ridgeway, Pa., to Shaw Electric Crane Co.

Two 30-ton locomotive cranes for the Wausau Sulphite Fibre Co., Mosinee, Wis., to the American Hoist & Derrick Co.

Two 6-ton, 5-motor cranes, 30-foot span, for a New York company, to the Northern Engineering Works.

Among single orders were:

6-ton handpower crane, 32-foot span, for the Tidewater Oil Co., for installation at Drumright, Okla., to Alfred Box & Co.; 5-ton handpower crane, 28-foot span, for the Honolulu Iron Works, Woolworth building, New York, to Alfred Box & Co.; 8-ton electric jib crane for the Shore Oaks, Pa., shops of the Pennsylvania railroad, to the Detroit Hoist & Machine Co.; 5-ton trolley for the Harrisburg, Pa., shops of the Pennsylvania railroad, to the Shaw Electric Crane Co.; 15-ton electric crane, 73-foot 6-inch span, for the Louisville & Nashville railroad for installation at Cincinnati, to the Shaw Electric Crane Works; 20-ton used locomotive crane, equipped with 1½-cubic yard bucket for the Acme Limestone Co., Snowflake, W. Va., to Philip T. King, New York; 1-yard clamshell bucket-handling crane, Reese Coal Co., Evanston, Ill., to Harnischfeger Corp.

CRANE ORDERS PENDING

Among single inquiries are: 20-ton locomotive crane for Newark, N. J.; action expected shortly; locomotive crane for the Ohio River Sand & Gravel Co., Parkersburg, W. Va.; bids being taken.

Amendments to the corporate articles of the Waukesha Motor Co., manufacturer of heavy duty engines for motor trucks, tractors, etc., Waukesha, Wis., change all of the capital stock to common shares. The authorized issue now is 20,000 common shares with a par value of $100, or $2,000,000. Harry L. Horning is president and general manager.

Here and There in Industry

Live Information Which Records the Expansion of Various Lines of Productive Enterprise

PITTSBURGH CRANE & EQUIPMENT CO., Pittsburgh, has booked several orders recently for transformer trucks. The Duquesne Light Co. has ordered three of 50-ton capacity, Stone & Webster Inc., one of 20-ton capacity. West Penn Power Co. one 54-ton, one 40-ton and two 20-ton trucks and the West Virginia Power & Transmission Co. one 20-ton.

* * *

AMERICAN WELDING ENGINEERING CO., Middletown, O., has established a department for the manufacture of welded smoke stacks for industrial and power plants.

* * *

BUCKEYE STEEL CASTINGS CO., Columbus, O., has purchased a fire tube waste heat boiler from the Freyn Engineering Co., Chicago, for installation at a 30-ton open-hearth furnace.

* * *

DETROIT STOKER CO., will open a manufacturing branch at St. Catharines, Ont., to take care of Canadian business, and all Detroit stokers for Canadian and English installation will be manufactured at the new branch.

* * *

KAWASAKI DOCKYARD CO., has placed an order with the Freyn Engineering Co., Chicago, for 12 electric roll heaters for installation in a black sheet mill at Kobe, Japan. The Freyn company now has equipped 27 mills with electric roll heaters.

* * *

FREYN ENGINEERING CO., Chicago, has received an order from the National Malleable & Steel Castings Co., Sharon, Pa., for a marine-type waste heat boiler to be installed at a 25-ton open-hearth furnace using pulverized coal as fuel. A smiliar installation was made recently by the Freyn company at the Melrose Park, Ill., works of the buyer.

* * *

OFFICIAL announcement has been made of the change of name of the Wayne Tank & Pump Co., Fort Wayne, Ind., to the Wayne Co. as the old name is no longer descriptive of all the products made by the company, which in addition to gasoline pumps, also manufactures Wayne oil burners, water softeners and other equipment. The change is in name only and in no way effects the business status or policies of the company, which now is entering its thirty-sixth year.

* * *

DUESENBERG MOTORS CO., Indianapolis, Ind., has been bought by a new company headed by E. L. Cord, president of the Auburn Automobile Co. The plant will be enlarged to increase production. Fred S. Duesenberg, president of the company, will become vice president in charge of engineering and experimental work in the new company.

* * *

ROTARY AIR PUMP CO., Anderson, Ind., Joseph Fair president, has leased the plant of the Chalmers Pump Co., Atlantic avenue and Erie railroad, and moved its manufacturing business there. James Wallace is vice president, H. Pillman secretary and treasurer and T. Anderson chief engineer. The company makes an air lift jack and rotary pump for automobile use.

* * *

METROPOLITAN MFG. & ELECTRIC CO., 1163 Sedgwick street, Chicago, recently incorporated, has been formed to take over the business founded a year ago by Frank Renner and expand it materially. The product is electrical appliances, heaters, grills, hot plates and similar devices. Frank Renner is president, H. N. Bennett vice president and H. E. Golden secretary and treasurer.

* * *

BIDS have been received for the construction of a special building at Purdue university, Lafayette, Ind., to be used for air brake tests. The building will be of brick and hollow tile. Some months ago railroad interests donated several thousand dollars to the university for research work to develop, if possible, a better brake system for trains than that now in use.

* * *

C E. MISER, head of the Wabash Tool & Die Works at Wabash, Ind., who has been operating his plant just off Wabash street there, has purchased the factory and site of the United States Button factory in Wabash and will move to the new building shortly. The main building on the new site is 30 x 150 feet, a two-story structure. Increased business made necessary the expansion.

* * *

THOMAS & SKINNER STEEL PRODUCTS CO., Indianapolis, Ind., has purchased the property formerly owned and operated by the Pioneer Brass Works in Indianapolis, and will remove its factory to the new location shortly, according to an announcement by J. R. Thomas, president. The property has a frontage of 300 feet in Twenty-third street and a depth of about 325 feet, with switch track and a modern brick and steel factory building five years old, with 30,000 feet of floor space.

* * *

THE home office of Stone & Webster Corp. in Boston has recently moved to the building formerly known as the Massachusetts Trust building facing Federal, Franklin and Devonshire streets. This is the fourth time in the development of the corporation that a move has been necessary due to need for larger quarters. Thirty-seven years ago, in 1889, Charles A. Stone and Edward S. Webster went into the business of electrical engineering. Now Stone & Webster projects are to be found in all parts of the world. The concern has constructed power plants with an aggregate of 2,750,000 horsepower. The new home of the corporation will be known as the Stone & Webster building, 200 Devonshire street.

Steel Vessels Increase

Pittsburgh, Oct. 11.—According to word from the bureau of navigation, department of commerce, on Aug. 1, 1926, American shipyards were building or had contracts to build for private shipowners 209 steel vessels of 246,150 gross tons, compared with 181 steel vessels of 183,770 tons on July 1. At the same time, they were building 18 wooden vessels of 8205 gross tons, compared with 39 wooden vessels of 15,285 gross tons on July 1. Among those located on the Ohio river were American Bridge Co., 71 vessels; Dravo Contracting Co., 30 vessels; Howard Shipyards, Jeffersonville, four vessels; Midland Barge Co., 12 vessels; Marietta Mfg. Co., Point Pleasant, six vessels; Nashville Bridge Co., Nashville, Tenn., two vessels.

Construction and Enterprise

Concise and Timely Business Building Opportunities from the Field of Industry

BIRMINGHAM, ALA.—Birmingham Ornamental Iron Co. has been incorporated with $14,000 capital by E. B. Irwin, 1109 South Twenty-sixth street.

LOS ANGELES—Emil Brown Co., Emil Brown president, has bought a site 400x400 feet at Central avenue and Sixty-third street, on which a plant and warehouse will be built for the sheet metal manufacturing business of this company.

OAKLAND, CALIF.—Sierra Machine Co. has leased a plant at King and Dennison streets and will equip it for the manufacture of deep-well pumps and parts.

DENVER—Consolidated Steel & Iron Co. has been incorporated with $10,000 capital by A. S. Donaldson, B. L. Lawyer and Helen Lawyer.

DENVER, COLO.—Sisler Triangle Seal Valve Inc. has been incorporated with $100,000 capital by T. L. Sisler, C. F. Sisler and W. F. Benson.

BRIDGEPORT, CONN.—Grant Mfg. & Machine Co., Sillman avenue, will build a 1-story plant 40 x 65 feet.

BRISTOL, CONN.—Wallace Barnes Co., Main street, manufacturer of springs and other specialties, has let contract to Joseph D. Devine, 113 Federal street, for a 1-story addition.

MERIDEN, CONN.—C. I. Packer Tool & Die Co. has been incorporated with $50,000 capital by Clifford I. Packer, Meriden, and Willis D. Northrop, West Haven, Conn.

MERIDEN, CONN.—Meriden Knife Co., North street, Edward Oefinger manager, has bought a site at 105 Sherman avenue on which a 1-story plant addition will be built.

MIDDLETOWN, CONN.—Capital Plating Co. has bought a plant which will be equipped for production of finished polished parts. Patrick Morrison, Middletown, is president.

SOUTH NORWALK, CONN.—Lockwood Mfg. Co., Day Street, hardware, has let contract to Russell Frost Jr., 50 West avenue, for a 1-story plant 40 x 100 feet.

TAMPA, FLA.—F. P. Lyons Iron Works Inc., F. P. Lyons president, Manchester, N. H., C. M. Phipps, secretary, 404 Franklin street, Tampa, is building 2-story steel fabricating plant and warehouse.

CHICAGO—Duston Auto Spring Mfg. Co., 2441 West Forty-eighth street, will build a 1-story plant 55 x 120 feet.

CHICAGO—Sloan Valve Co., W. E. Sloan president, 4300 West Lake street, is having plans made for a 3-story plant 100x135 feet.

CHICAGO—G. E. Tipton, 6038 Wentworth avenue, will build a 1-story machine shop 50x100 feet.

CHICAGO—Eagle Tank Co., W. O. Olson president, 2450 North Crawford avenue, is considering building a 1-story tank plant at Kildare and Wellington avenues.

CHICAGO—Johnson Shuttle Co., J. W. Johnson manager, 215 West Superior street, will build a 1-story plant 75x122 feet on Belmont avenue near Kimball street. Carl M. Almquist, 118 North LaSalle street, is architect.

CHICAGO—Mot-Acs Co. of Illinois, 605 North Michigan avenue, has been incorporated with $50,000 capital to manufacture automobile accessories and parts by E. M. Hines, C. G. Hines and R. C. Bennett, 160 North LaSalle street.

Where additional information is presented, reference is made to date of issue in which previous item appeared.

CHICAGO—Appleton Electric Co., manufacturer of electrical appliances and supplies, Albert I. Appleton president and treasurer, will build a 4-story annex to its present plant at Paulina and Wellington streets. Walter W. Alschlager Inc., 65 East Huron street, is architect.

CHICAGO—Pyramid Engineering & Mfg. Co., 1256 Wellington avenue, has been incorporated with $25,000 capital and 1000 shares no par value, to manufacture metal stampings and specialties, by O. Q. Hinds, George M. Kauffman. George E. Mueller, 53 West Jackson boulevard, is correspondent.

CHICAGO—Standard Steel Products Co., 4615 Roosevelt road, has been incorporated with $15,000 capital to manufacture iron, steel and other metal products by V. Neville, W. J. Murphy, W. J. Thompson and Alfred J. Thompson. Charles F. Cooke, 1720 South Michigan avenue, is correspondent.

KANKAKEE, ILL.—Sears, Roebuck & Co., Homan avenue, Chicago, will build an addition to its stove plant.

KEWANEE, ILL.—Kewanee Safe Co., 520 Commercial street, has been incorporated with $25,000 capital to manufacture safes and safety receptacles by Ralph D. Whitmore, Daniel Bauer and Raymond B. Glidden. Thomas J. Welch, Savings Bank building, Kewanee, is correspondent.

MELROSE PARK, Ill.—Mississippi Valley Structural Steel Co., 208 South LaSalle street, Chicago, will build a structural steel plant 350x360 feet here.

NORTH CHICAGO, ILL.—Fansteel Products Co., radio equipment, will build a 2-story plant 100 x 100 feet. Frank D. Chase Inc., 720 North Michigan avenue, Chicago, is architect.

ALEXANDRIA, IND.—Meyers Machine Co. has been incorporated to manufacture automatic glass-making machinery by D. S. Meyers, D. S. Meyers Jr. and George T. Meyers.

ANDERSON, IND.—Ames Shovel & Tool Co. will build a 1-story addition to its plant 80x 200 feet on North Anderson street. Forge shop equipment will be installed.

ELKHART, IND.—Bakstad Machinery Co. has been incorporated with 1000 shares no par value to deal in roadbuilding and other machinery by M. M. Bakstad, and W. McK. White.

EVANSVILLE, IND.—Chicago & Eastern Illinois railroad, 32 South Michigan avenue, Chicago, will build a 1-story forge and blacksmith shop at its yards here.

INDIANAPOLIS, IND.—Metal Trading Co. has been incorporated to deal in machinery and tools by Frank J. Viehmann, Adolph Seidensticker and Frank Seidensticker.

LAFAYETTE, IND.—Ross Gear & Tool Co., Eighth and Heath streets, will build a 1-story plant 55x100 feet. W. Scholer is architect.

MUNCIE, IND.—Vulcan Metals Process Corp. has been incorporated with 1500 shares no par value to manufacture iron, steel and other metals by Lewellyn Jones, Walter L. Nelson J. C. Harris and J. A. Mouch.

PERU, IND.—J. Miller will build a 1-story machine shop 45x132 feet. O. F. Cook, Kokomo, Ind., is architect.

PLYMOUTH, IND.—Plymouth Metal-Working Co., manufacturer of radiators, will build an addition 60x161 feet to double its present output. W. B. Michel is manager.

VEEDERSBURG, IND.—Globe Railway Equipment Co., St. Louis, is building a plant here for the manufacture of patent car door hangers, spring track devices and other specialties.

NEW ORLEANS—American Sheet Metal Works, George Koehler secretary, 3500 South Carrollton avenue, has let contract to Joseph Fromherz, Inc., Title Guarantee building, for a 1-story sheet metal plant.

BALTIMORE—Maryland Meter Works, E. S. Dickey manager, 309 East Saratoga street, is considering plans for a 6-story plant 80 x 200 feet. T. W. Pietsch, American building, is architect.

BOSTON—Atlantic Works, 80 Border street, East Boston, is building a 1-story machine shop 100 x 120 feet.

BOSTON—Underwood Machinery Co., 110 Mount Vernon street, South Boston, will build a 2-story addition and 1-story new building.

BOSTON—Nu-Way Oil Heating Co. has been incorporated with $50,000 capital to manufacture oil burning equipment by Edward J. Dowd president, 88 Pleasant street, Brookline, Mass., Francis J. Kirby treasurer, 146 Hammond street, Chestnut Hill, Mass.

BOSTON—J. J. Shannon Co. has been inincorporated with 500 shares no par value to manufacture typewriters and machinery by Oliver A. Wyman president and treasurer, 613 Old South building, A. A. Wyman and T. E. Moisan.

BOSTON—Endurance Mfg. Co. Inc. has been incorporated with $105,000 capital to manufacture batteries and other metal products by Joseph J. Lane president and treasurer, 110 Pembroke street, C. G. Olliver and William Crozier.

LOWELL, MASS.—Pollard Co. Inc. has been incorporated with $25,000 capital to manufacture lunch cars and other vehicles by Wilson H. Pollard president, Joseph E. Carroll treasurer, 295 Appleton street, and R. Arthur Pollard.

SOUTH QUINCY, MASS.—Matheson Machine Shop, Water street, will build a 1-story plant 30 x 100 feet and 16 x 50 feet. Batty & Gallagher Inc., 13 Temple street, Quincy, Mass., are architects.

TURNER FALLS, MASS.—Electric Steel Products Co. will rebuild burned portion of its foundry building recently damaged.

WORCESTER, MASS.—Graton & Knight Mfg. Co., Frank H. Willard general manager, will rebuild burned portion of its belting plant.

New Construction and Enterprise

CHARLOTTE, MICH.—Hancock Mfg. Co., automobile hardware, J. C. Scott secretary, is building a 1-story addition 100 x 240 feet.

DETROIT—Detroit Gray Iron Foundry Co. will build an addition to its plant from plans being prepared by Mildner & Eisen, Detroit.

DETROIT—U. S. Commercial Body Co. has been incorporated with $30,000 capital to manufacture machinery by Allen Mosher, 1130 Parker avenue, Frances J. Mosher and G. Ogden Ellis.

DETROIT—Epworth Mfg Co. has been incorporated with $100,000 capital to operate a machine shop by Theodore V. McDonald, 11694 Cascade avenue, S. Grant McDonald and William M. McDonald.

KANSAS CITY, MO.—Bunker-Clancey Mfg. Co., 1110 Woodland avenue, has been incorporated with $50,000 capital to manufacture metal and wood products by C. A. Bunker and J. A. Clancy.

ST. LOUIS—Star Mfg. Co. has been incorporated with $10,000 capital by John E. Taylor, 4741 Lewis street.

ST. LOUIS—Chart-O-Meter Co. has been incorporated to manufacture cloth measuring machines by W. Wintz, 342 Humphry street.

ST. LOUIS—Barron-Wrape Co. has been incorporated with $20,000 capital to manufacture electrical appliances by Louis E. Maginnis, 5940 Woodland street.

MILES CITY, MONT.—Chicago, Milwaukee & St. Paul railroad will enlarge its shops and add six boilers to its power plant.

BRIDGEPORT, NEBR.—Chicago, Burlington & Quincy railroad will build a 1-story locomotive repair shop for which equipment will be required.

MANCHESTER, N. H.—Manchester Traction Light & Power Co. has given contract to Morton C. Tuttle Co., Boston, for a 2200-horsepower hydro-electric station.

CAMDEN, N. J.—Stanton Forging Co. Inc., Everett and German streets, Henry D. Rutter president, manufacturer of forgings, has let contract to Lewis T. West for an addition 50 x 50 feet to its forging department.

GLOUCESTER, N. J.—Empire Tool Corp. has been incorporated with $50,000 capital to manufacture tools by Marsden B. Chandler, Robert J. Lantry, New York; Marguerite M. Risdorf, Brooklyn. Wood, Stickles & Candler, New York, are attorneys.

LONG BRANCH, N. J.—Victor Metal Works Inc. has been incorporated with $50,000 to deal in metal products by Harold Victor, Long Branch; Sidonia S. Gorsky and Harry Maiman, Brooklyn, N. Y. Salvatore F. LaCorte, Elizabeth, N. J., is attorney.

NEWARK, N. J.—Franklin Appliance Co., 208 Sylvan avenue, recently incorporated, will manufacture electric irons and other household appliances.

BATAVIA, N. Y.—Batavia & New York Woodworking Co. will build an addition 200 feet long for fireproofing treatment of wood.

BINGHAMTON, N. Y.—Thompson Rubbing Machine Co. has been incorporated with $50,000 capital by C. F. Hotchkiss, R. M. Gaffney and C. H. Thompson. Jenkins, Deyo & Hitchcock, Binghampton, are attorneys.

BROOKLYN, N. Y.—Serrao Bearing Corp. has been incorporated with $3000 capital to manufacture axles and shafts by A. Serrao, N. Cancelia and R. M. Ross. M. N. Greenhall, 350 Fulton street, is attorney.

BUFFALO—Kittinger Furniture Co. is building a fireproof addition to its plant.

BUFFALO—Altman Purchasing Syndicate has been incorporated with 5000 shares no par value to manufacture vacuum cleaners by E. H. Atman, and E. W. Sauerwein. M. M. Cohen, Buffalo, is attorney.

HEMPSTEAD, N. Y.—Kelsey & Sinclair has been incorporated with $5000 capital and 75 shares no par value to manufacture machinery by H. M. Kelsey, W. A. Sinclair and M. H. Cyphers. H. L. Haskins, Hempstead, is attorney.

NEW YORK—Pierce Bearing Corp. has been incorporated with 200 shares no par value to manufacture motors by W. S. Pierce Jr., J. G. Peet and F. C. Nicodemus Jr. Pierce & Greer, 37 Wall street, are attorneys.

NEW YORK—Kotten Machine Co. has been incorporated with $100,000 capital by G. W. Knappman, T. F. Vierow and R. C. Smith. Medina, Sherpick & McKee, 165 Broadway, are attorneys.

NEW YORK—Becker Novelty Mfg. Corp. has been incorporated with 200 shares no par value to manufacture metal goods by V. Backer, M. Backer and W. Naftal. J. J. Lazaroe, 25 West Forty-third street, is attorney.

ROCHESTER, N. Y.—Rainbow Appliance Corp., 11 Hand street, has been incorporated with $400,000 capital to manufacture automatic ironers, continuing an existing business.

ROCHESTER, N. Y.—Will-Du-More Oil Burner has been incorporated with $25,000 capital to manufacture oil burning devices by L. F. Dustin, M. E. Dustin and A. C. Willeea. Forsythe & Forsythe, Rochester, are attorneys.

RALEIGH, N. C.—Carolina Electrical Equipment Co. has been incorporated with $10,000 capital by J. Milton Gutliff and Herman E. Wood.

MINOT, N. D.—Northwest Machine Shop, F. E. Harrison president, will build a 1-story plant 100 x 100 feet.

AKRON, O.—National Standard Co. has given contract to the Austin Co. for a plant 70x260 feet for manufacture of jacks and pumps.

CANTON, O.—Book Roller Bearing Mfg. Co. has been incorporated with $10,000 capital by J. F. Strough, A. Lynch, William A. Brooks. James K. Lynch and M. E. Taggart.

CINCINNATI, O.—Goldsmith Metal Lath Co., Max S. Goldsmith president, Third street and Eggleston avenue, is having plans drawn for a 1-story plant 80x300 feet at Orient and Chickering avenues.

CLEVELAND—Forest City Foundry Co. has given contract to H. G. Slatmyer Co., 203 Lakeside avenue, for a 1-story addition 60x152 feet.

DAYTON, O.—Boynton Pneumatic Brake Co. has been incorporated with 1000 shares no par value by G. T. Boynton, A. C. Goetz, F. P. Speiss Jr., F. M. Wilson and F. Schnebly.

DELAWARE, O.—Delaware Brass Co., Harrison street, J. P. Slater general manager,

Industrial Business Changes

SOUTHERN TESTING LABORATORIES INC., Birmingham, Ala., has moved into its new building at 2227 First avenue South, which it has purchased and fitted for laboratory use. J. F. Carle is president and William Makemson is vice president.

* * *

Maxim Silencer Co., Hartford, Conn., has occupied new offices in the Capitol building, 322 Asylum street.

* * *

J. E. Windell Machine Mfg. Co., formerly of Worcester, Mass., has moved to North Grafton, Mass., where operations will be resumed shortly. John E. Windell is president.

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Wilson Iron Works, Los Angeles, has moved to 1137 West Twenty-fifth place.

* * *

Thistle Wire Works Co. plant, Pittsfield, Mass., manufacturer of wire screens for paper mills, has been sold to George Roberts Jr.

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G. L. Anderson Brass Works Inc., Birmingham, Ala., has changed its name to Anderson Brass Works Inc.

* * *

Adams Starke Co. Inc., recently incorporated at Brooklyn, N. Y., is a merger of the Adams Galvanized Corp. and the Adolf Starke Co. The company will continue the manufacture of spikes, bolts, washers and tie bolts.

* * *

Rajah Auto Supply Co., Bloomfield, N. J., has been succeeded by the Rajah Co., which will continue the manufacture of spark plugs and other automotive supplies. David B. Mills, president and majority owner, has sold his interest and is retiring. Robert A. Bell is president, Wilbur D. Washburn treasurer, George Berthold vice president and Elizabeth G. Keeler secretary.

Iron and Manganese Ores and Minerals

Iron Ore

LAKE SUPERIOR ORES

Per Gross Ton Lower Lake Ports

Old range bessemer, 51½ per cent iron	$4.55
Mesabi bessemer, 51½ per cent iron	4.40
Old range nonbessemer, 51½ per cent iron	4.40
Mesabi nonbessemer, 51½ per cent iron	4.25

EASTERN LOCAL ORES

Cents per unit delivered at Eastern Pennsylvania and New Jersey furnaces

Foundry and basic 53 to 63 per cent	9.00 to 10.50
Copper free low phosphorus 53 to 65 per cent	nominal

FOREIGN IRON ORE

Cents per unit, f.o.b. cars Atlantic ports

Spanish low phosphorus, 52 to 54 per cent	10.00 to 11.00
North African low phosphorus	9.25 to 9.75
Swedish and Norwegian low phosphorus, 68 per cent	10.25 to 10.75
Swedish foundry or basic, 66 to 68 per cent	9.00 to 9.50
Spanish foundry or basic, 50 to 54 per cent	8.75 to 9.25
North African foundry and basic 50 to 54 per cent	8.50 to 9.50

Manganese Ore

Prices do not include duty at rate of 1 cent per pound of metallic manganese contained.

Brazilian, minimum, 47 per cent, 32 to 35 cents	
Indian, minimum 47 per cent	32 to 35 cents
Caucasian, 53 to 55 per cent Washed	nominal

Fluor Spar

85 and 5 per cent grade

Washed gravel, Kentucky and Illinois mines, per net ton	$17.50 to 18.00
Washed gravel, imported duty paid eastern tidewater, per ton	16.50 to 17.75

will build an addition to its plant.

JACKSON, O.—Crown Pipe & Foundry Co. will build a plant here for manufacture of castings.

SPENDER, O.—Firestone Valve Cap Co. has been incorporated with $30,000 capital by J. H. Firestone, J. B. Firestone, G. L. Benford, E. M. Armstrong and O. D. Firestone.

TOLEDO, O.—Standard Electric Stove Co., S. L. Kelly president, 1720 North Twelfth street, is considering plans for a plant at Oakwood and Hawthorne avenues.

PORTLAND, OREG.—Edwards Ice Machine Co. has leased a plant at Emeryville, Calif., and will equip it for the manufacture of heavy refrigerating machinery.

BEAVER FALLS, PA.—Ingram-Richardson Co., College Hill, enameled iron goods, will build two additions, 50 x 60 feet and 96 x 125 feet. J. E. Martsolf, 512 Third avenue, New Brighton, Pa., is architect.

EAST BRADFORD, PA.—Midwest Steel & Supply Co., John Hillstrom manager, has let contract to Simonson & Lundgren, East Bradford, for a 1-story plant.

ERIE, PA.—Metric Metal Works will build an addition to its plant here.

HAZLETON, PA.—Benjamin Auto Parts Co., 19 West Hemlock street, will build a 1-story plant 72 x 85 feet at Pine and Maple streets.

JEANETTE, PA.—Pittsburgh Engineering Co. will build a foundry and storage plant 110x110 feet. E. W. Eckert, 420 Y street, Derry, Pa., is architect.

MILL HALL, PA.—Burned portion of plant of Mann Edge Tool Co. will be rebuilt. John M. Stevens, Lewiston, Pa., is president.

PHILADELPHIA—Contract has been placed with the Phoenix Bridge Co. for structural steel for subway repair shops in this city.

PHILADELPHIA—The National Carbon, Cambria and Richmond streets, has awarded a contract for a $30,000 plant to the Central Concrete Co., Drexel building.

PHILADELPHIA—Connery & Co. Inc., boilermakers, Second street. are taking sub-bids on a plant addition and office building, three stories high, 50x250 feet, of brick, stone and concrete.

PHILADELPHIA—American Heat Treating Co., Lancaster avenue and Fifty-first street, has bought the plant of the McHatton Foundry Co., 1500 Washington avenue, and will establish itself there.

PHILADELPHIA—The Philadelphia Rapid Transit Co., 1820 Dauphin street, will start work at once on alterations to its waste reclaiming plant, Second and Wyoming streets, costing $6000.

PHILADELPHIA—Contract for a $6000 factory building for the estate of G. G. Thompson, 310 Cherry street, has been awarded F. G. English & Sons, 1606 North Carlisle street.

PHILADELPHIA—Contract for a $100,000 manufacturing building for the Yarnell Paint Co., Fifty-fifth and Grays streets, has been awarded to the William Steele & Sons Co., 219 North Broad street.

PHILADELPHIA—Jacobs Bros. Motor Co., Winona and Morris streets, has awarded a contract for a $20,000 repair shop and service station to Carr & Courtnay, 3025 Poplar street.

PHILADELPHIA—Contract has been awarded for a $60,000 factory building for Joseph A. Foster & Sons, Lippincott street, to the H. M. Wilson Co., Peoples Bank building.

PHILADELPHIA—Bids are being asked on structural steel for the proposed addition to the plant of the Philadelphia Gear Works, Richmond and Tioga streets. Morris W. Castor, architect, has completed plans for the structure, which will cost $200,000.

POLAND, PA.—Shamokin Coal & Coke Co., 311 Ross street, Pittsburgh, will build several buildings, including 2-story shop 43x60 feet, blacksmith shop 52x151 feet and others. G. S. Baton Co., First National Bank building, Pittsburgh, is engineer.

WARREN, PA.—Warren Tank Car Co. has given contract to Rogers Structural Steel Co., Corry, Pa. for a factory addition.

CHATTANOOGA, TENN.—American Hoist Corp., 518 Hamilton National Bank building, O. B. Gladish manager, is building plant to manufacture 100 hoists monthly.

CHATTANOOGA, TENN.—National Products Co., Carter and Twelfth streets, C. D. Martin president, is building two additions, 100 x 100 feet and 65 x 100 feet. Present plant will be used for storage.

JACKSON, TENN.—Wood Portable Fire Escape Co., 432 East Deadrick avenue, Joseph C. Wood president, is seeking plant and will install presses, drill presses, lathes, geat cutters and shapers for the manufacture of fire escapes.

MARYVILLE, TENN.—Shriver Foundry Co. will build a foundry building 80x150 feet to replace building recently burned.

MEMPHIS, TENN.—W. C. Ellis & Sons, 245 South Front street, will build a 1-story machine shop.

AMARILLO, TEX.—Forth Worth & Denver City Railroad Co., R. C. Gowdy chief engineer, Denver, Colo., will build a 5-stall roundhouse here.

FORT WORTH, TEX.—Martin Mfg. Co. has been incorporated with $10,000 capital to manufacture revolving cultivator and plant thinner, by W. A. Martin and T. S. Wade.

HOUSTON, TEX.—Markle Steel Co. has been incorporated with 10,000 shares no par value by C. M. Markle, Elizabeth Markle and Charles Muir.

HOUSTON, TEX.—Unit Mfg. Co., H. E. Dickinson president, has moved plant and equipment from San Antonio to Houston, with temporary plant at 4815 Harrisburg boulevard. Additional equipment is being installed.

HOUSTON, TEX.—Houston Terminal Warehouse & Cold Storage Co. has been incorporated with $1,300,000 capital by R. H. Baker, Houston, Tex., and Harvey Miller, Philadelphia. Contract had been let to Hewitt Construction Co., Houston, Tex., for 6-story cold storage warehouse on North Jacinto street.

LUBBOCK, TEX.—Texas Technological college has let contract to J. B. Maxey for a machine shop building to cost $15,000.

NOCONA, TEX.—Beck Machine & Boiler Co. has been incorporated with $50,000 capital by O. V. Beck and Frank Eastup.

SAN ANGELO, TEX.—San Angelo Foundry & Machine Co. has been incorporated with $40,000 capital by Johanna Willig, Robert Willig and A. A. Koch.

SALT LAKE CITY, UTAH.—Griffin Wheel Co. is building carwheel manufacturing plant at Eighth West and Eighth North streets where 14 acres has been bought. General offices of the company are at 332 South Michigan boulevard, Chicago.

NORFOLK, VA.—The Virginia Power & Electric Co. is inquiring for structural steel for a power house extension.

ANACORTES, WASH.—Herman Beiring and Arthur Richmond, Tacoma, have leased a site of half an acre from Gus Hensler, Anacortes, and have given contract to L. A. Farmer for erection of a foundry plant.

SEATTLE—Hydraulic Supply Mfg. Co. has bought a site of four acres on the Duwamish river and will move its present plant there.

SEATTLE—Pioneer Enameled Steel Products Corp. has been incorporated with $50,000 capital by A. H. Jahns, Jacob Heib and associates.

SEATTLE—Northwest Steel Rolling Mills, 4301 Ninth avenue northwest, has given contract to the Austin Co. for a transformer plant.

SEATTLE—Seattle Chain & Mfg. Co., 6921

East Marginal way, has let contract for a 1-story addition 50x56 feet to G. Kilgren Co., Mutual Life Building.

TACOMA, WASH.—Hague Auto & Machine Works, C. and G. A. Hague owners, has bought property adjoining its plant and will enlarge its works.

HUNTINGTON, W. VA.—Armstrong Mfg. Co., manufacturer of electric ranges, is having plans prepared for enlargement of its plant. Financing has been accomplished.

ANTIGO, WIS.—Jos. E. Nelson & Sons, 3240 South Michigan avenue, Chicago, have taken the general contract to build a new $60,000 steam power plant for the Chicago & Northwestern Railroad Co. at its division headquarters here. W. J. Towne is chief engineer.

FOND DU LAC, WIS.—The Galloway-West Co., dairy products, has let the general contract to the Tallmadge Construction Co., 214 Mason street, Milwaukee, for the construction of a new dry milk plant costing about $80,000 with machinery and equipment.

JANESVILLE, WIS.—Reconstruction of the central hydroelectric generating plant of the Wisconsin Power & Light Co., Madison, Wis., at Janesville has been started. It will cost about $75,000. Mead & Seastone, Madison, are the engineers in charge. E. J. Kallevang, Madison, is chief engineer of the company.

LACROSSE, WIS.—Motometer Co., Gillet and Caledonia streets, is building an addition 82x140 feet, contract to F. R. Schwalbe & Sons, 414 Rivioli building.

MAUSTON, WIS.—R. H. Davis & Son, operating a water power and flour mill plant, have let contracts for the construction of a new hydroelectric plant which will be utilized largely for commercial current production. It will cost about $60,000.

MILWAUKEE.—Contracts have been let by the Jambor Tool & Stamping Co., 1261 Thirtieth street, for the construction of a shop addition, 60 x 65 feet, 1-story and part basement.

RACINE, WIS.—Harvey Boring & Forging Co. is considering plans for an addition to its plant for larger production of automobile bumpers.

RACINE, WIS.—Standard Foundry Co., Arthur R. Janes president, has let contract to Nelson & Co. for a 1-story addition 110x220 feet for foundry use, present foundry to be converted into cleaning room.

STOUGHTON, WIS.—McNally-Tollefson Foundry Co. has been incorporated with $50,000 capital and 1000 shares no par value to operate a foundry and machine shop by Nelle W. Tollefson. E. M. Tollefson and John E. McNally.

TREGO, WIS.(Washburn County)—The Wisconsin Hydroelectric Co., E. J. Schreider, Amery, Wis., president, has placed contracts for a new hydroelectric plant on the Namakagon river at this point. It will cost about $100,000.

Refractories

FIRE CLAY BRICK

Per 1000 f.o.b. works

Pennsylvania, No. 1	$40.00 to 43.00
Pennsylvania, No. 2	35.00 to 38.00
Ohio, No. 1	40.00 to 43.00
Ohio, No. 2	35.00 to 40.00
Illinois, No. 1	40.00 to 43.00
Illinois, No. 2	35.00 to 38.00
Kentucky, No. 1	40.00 to 43.00
Kentucky, No. 2	38.00 to 40.00
Missouri, No. 1	40.00 to 43.00
Missouri, No. 2	35.00 to 38.00
Maryland, No. 1	40.00 to 45.00
Maryland, No. 2	36.00 to 40.00
Georgia and Ala. No. 1	40.00 to 45.00
Georgia and Ala. No. 2	30.00 to 35.00

SILICA BRICK

Pennsylvania	43.00
Chicago	52.00
Birmingham	50.00

MAGNESITE BRICK

Per Net Ton Seaboard Base

9 x 4½ x 2½	65.00 to 70.00

CHROME BRICK

(Per Net Ton)

9 x 4½ x 2½	45.00 to 50.00

Business in Canada

EDMONTON, ALTA.—Maple Leaf Steel Mills Ltd. has been incorporated to manufacture iron and steel products with $500,000 capital stock, by Paul E. Poirer, Robert H. C. Harrison, George W. Taylor and others.

MEDICINE HAT, ALTA.—Western Steel Co. Ltd. has been incorporated to take over from Lewis A. McElroy the rolling mill in Medicine Hat and manufacture iron and steel products, with $150,000 capital and 1500 shares of no par value, by Larmour Soliague, John Alex McEvoy, Agnes Moulton and others.

GUELPH, ONT.—The Guelph Spring & Axle Co. Ltd. has been incorporated to manufacture and deal in iron and steel products, with $63,000 capital and 6000 shares of no par value.

TORONTO, ONT.—The Foley Red Lake Gold Mines Ltd. has been incorporated to mine, smelt and refine ore, metals and minerals with 200,000 shares without par value by Gerald N. Purcell, John D. Currie, Wm. H. Doughty and others.

MONTREAL, QUE.—The Royal Bank has awarded a contract to the Dominion Bridge Co. for the steel work in a new bank building 23 stories at Notre Dame and St. James streets to be completed by May 1, 1928.

QUEBEC, QUE.—The Provincial Department of Public Works has awarded T. E. Rousseau Ltd. a contract for the construction of a steel bridge 300 feet long across Riviere du Lou at St. George Beauce to cost $60,000.

New Trade Publications

SLITTING MACHINES—A bulletin by the Blake & Johnson Co., Waterbury, Conn., describes its light high-speed type slitting machines for belt or motor drive. Full specifications are presented.

ALLOYS—American Boron Products Co., Inc., Buffalo, has issued a 60-page booklet describing the various nonferrous alloys manufactured by this firm. These alloys may be used for alloying, deoxidizing and for solidifying purposes.

SANDERS AND GRINDERS—Motor driven sanders, grinders and bandsaws are shown in a pamphlet issued by the Porter-Cable Machine Co., Syracuse, N. Y. These machines may be used in pattern shops, machine shops, box factories and furniture factories.

STAINLESS IRON—Bethlehem Steel Co., Bethlehem, Pa., has issued a booklet giving the properties, composition and application of stainless iron and steel manufactured by it. Instructions for working and engineering data are given.

CENTRIFUGAL COMPRESSORS — Single stage centrifugal air compressors or blowers as produced by the General Electric Co., Schenectady, N. Y., are described in detail in a bulletin just issued by that company, with ratings and other engineering data.

PORTABLE COMPRESSORS—Air compressors of portable type, operated by electric motors are featured in a bulletin by the Sullivan Machinery Co., Chicago. These are a new type of compressor just placed on the market. They are of 103 and 206 cubic feet capacity.

LETTERS AND FIGURES—Pattern letters and figures of various sizes and styles are shown in a catalog issued by H. W. Knight & Son, Seneca Falls, N. Y. A sample board of aluminum containing 25 styles in half-inch sizes aids considerably in selecting the style of letter for the purpose in hand.

BROACHING MACHINE—A high speed broaching machine made by the Oilgear Co., Milwaukee, is described in a bulletin just issued. It contains a new application of the company's hydraulic pump as the power unit which is claimed to give high efficiency, smooth operation and ease of control. Blueprint detail of the machine is given.

ALLOY STEEL—The Kinite Corp., Milwaukee, has issued a bulletin describing its cast steel alloy for which is claimed a great resistance to wear, dense, close grain and long wear in dies and tools. It is illustrated by halftones of various forms in which it is used, with some account of performance under heavy use.

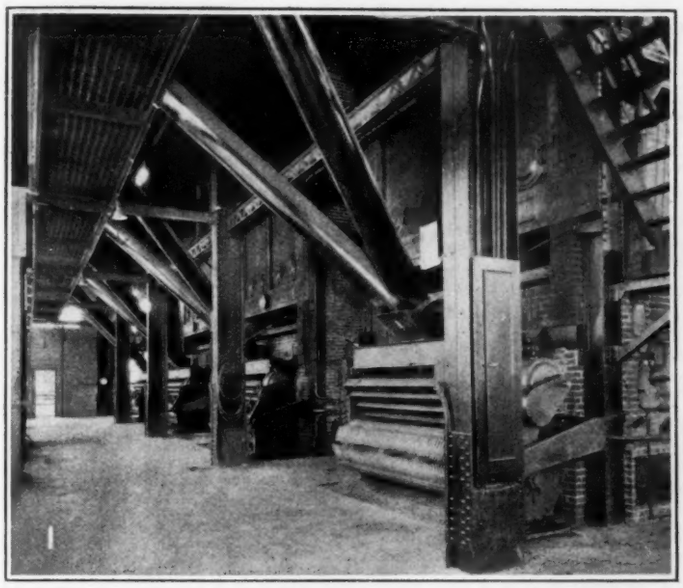
STEEL—Advertising steel as a building material is the subject of a broadside issued by the American Institute of Steel Construction. It is illustrated by numerous halftones showing how steel erectors are using signs on their work, both painted and electric, to impress on the public the advantages of this form of material.

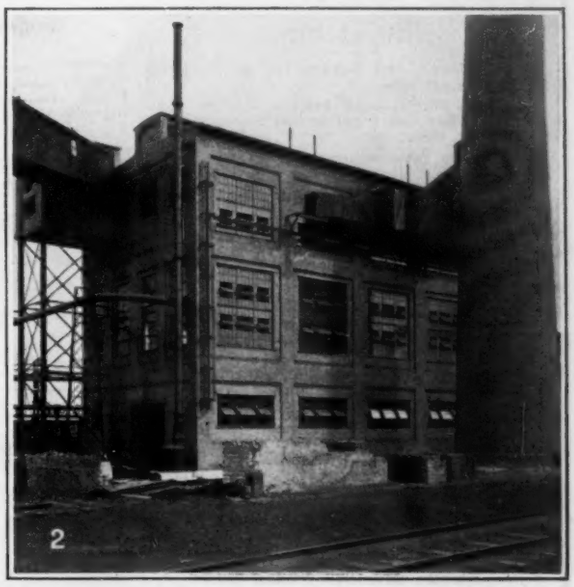
RIDDLES—Motor-driven and hand-operated, portable riddles are shown in a folder published by the Adaptable Molding Machine Co., Birmingham, England. The riddle rides on a rocker frame which is connected to a flywheel that keeps the riddle oscillating. Claims for a larger quantity of sand riddled with less energy than hand riddling are put forth.

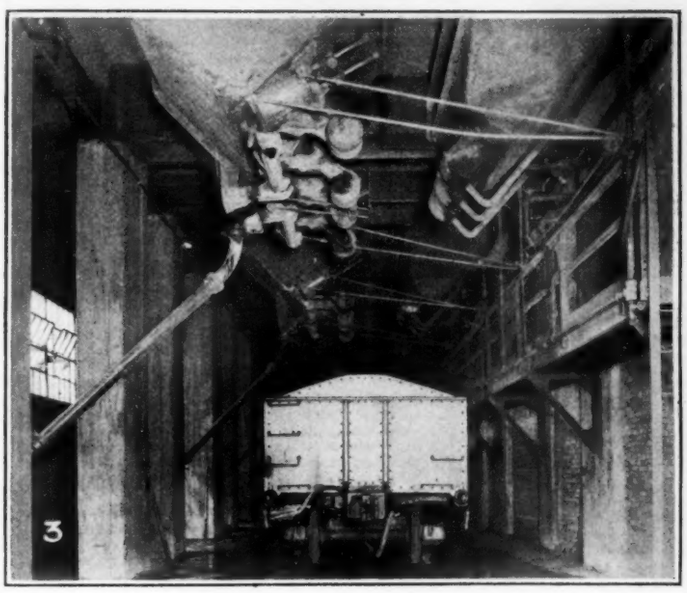
MOLDING MACHINES—Jolt squeeze, plain jolt, combination jolt and power squeeze with electric pattern draw molding machines in portable and heavy duty types are shown in a catalog published by the William H. Nicholls Co., Inc., Brooklyn, N. Y. Sizes and capacities of the machines are given and the illustrations are from actual installations.

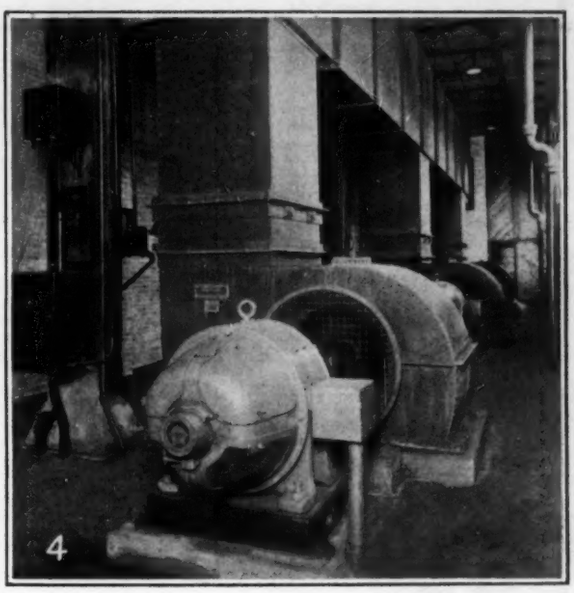
LUMBER—Sugar Pine Sales Co., San Francisco, has published an 18-page catalog describing sugar pine from forest to finished product in the pattern shop. Physical properties, methods of manufacturing into lumber, grades and recommendations for use are given. Illustrations show the various types of patterns where this lumber has been used successfully.

INDUSTRIAL POWER PLANTS









Boiler Plant of By-Products Coke Corporation, Chicago. *Freyn-Design*

This Company has designed and constructed Industrial Power and Boiler Plants totalling in value over Twelve Million Dollars.

Let us work with you.

FREYN ENGINEERING COMPANY

Consultants—Engineers—Contractors

310 So. Michigan Avenue

CHICAGO

Discounts and Extras

Steel Pipe

Pittsburgh and Lorain basing discounts, jobber's carloads.

Evanston, Ill., and Indiana Harbor, Ind., take differential 2 points less discount or $4 per ton higher net.

Chicago takes differential 2½ points less than Pittsburgh-Lorain basis or $5 per ton higher net.

Butt Weld

	Black	Galvanized
⅛-inch	45	19½
¼ and ⅜-inch	51	25½
½-inch	56	42½
¾-inch	60	48½
1 to 3-inch	62	50½

Lap Weld

2-inch	55	43½
2½ to 6-inch	59	47½
7 to 8-inch	56	43½
9 and 10-inch	54	41½
11 and 12-inch	53	40½

REAMED AND DRIFTED

Butt Weld

1 to 3-inch	60	48½

Lap Weld

2-inch	53	41½
2½ to 6-inch	57	45½

EXTRA STRONG—PLAIN ENDS

Butt Weld

⅛-inch	41	24½
¼ and ⅜-inch	47	30½
½-inch	53	42½
¾-inch	58	47½
1 to 1½-inch	60	49½
2 to 3-inch	61	50½

Lap Weld

2-inch	53	42½
2½ to 4-inch	57	46½
4½ to 6-inch	56	45½
7 to 8-inch	52	39½
9 and 10-inch	45	32½
11 and 12-inch	44	31½

DOUBLE EXTRA STRONG

Butt Weld

½-inch	42	32½
¾ to 1½-inch	45	35½
2 to 2½-inch	47	37½

Lap Weld

2-inch	41	32½
2½ to 4-inch	43	34½
4½ to 6-inch	42	33½
7 to 8-inch	38	25½

(Note—Large jobbers obtain additional preferential discounts of 1 and 5 on black and 1½ and 5 on galvanized.)

Wrought Iron Pipe

Pittsburgh basing discounts, jobbers' carloads. Individual quotations made on delivered basis.

THREADS AND COUPLINGS

Butt Weld

¼ and ⅜-inch	+11	+39
½-inch	22	2
¾-inch	28	11
1 to 1½-inch	30	18

Lap Weld

1¼ and 1½-inch	Upon application	
2-inch	23	7
2½ to 6-inch	26	11
8 to 6-inch	28	13
7 to 12-inch	26	11

PLUGGED AND REAMED

Two points less than above

EXTRA STRONG, PLAIN ENDS

¼ and ⅜-inch	+19	+54
½-inch	21	7
¾-inch	28	12
1 to 1½-inch	30	14

Lap Weld

2-inch	23	9
2½ to 4-inch	29	15
4½ to 6-inch	28	14
7 to 8-inch	21	7
9 to 12-inch	16	2

DOUBLE EXTRA STRONG

Butt Weld

½-inch	+47½	+59½
¾-inch	+28	+40
1-inch	+34	+46
1¼-inch	+28	+40
1½-inch	+27	+39

Lap Weld

2 and 2½ inches	+13	+25
3 to 4-inch	+ 8	+17
4½ to 6-inch	+ 9	+18
8-inch	+12	

(Note—Large jobbers obtain additional preferential discounts of 1, 5 and 2½ on black and galvanized.)

Boiler Tubes

Pittsburgh less carload discounts. Carload 4 points larger

STEEL (Lap Welded)

2 and 2¼-inch	23 off
2½ and 2¾-inch	33 off
3-inch	36 off
3½ to 3¾-inch	38½ off
4 to 13-inch	42 off

(Note—Additional discounts of 5 to 7 extra 5 per cents now being given.)

CHARCOAL IRON

1½-inch	+22
1¾-inch	+12
2 and 2¼-inch	+ 2
2½ to 3-inch	3
3½ to 4½-inch	5

(Note—Additional discounts of 2 or 3 extra 5 per cents now being given.)

SEAMLESS COLD DRAWN

1-inch	56 off
1¼ and 1½-inch	48 off
1¾-inch	32 off
2 and 2¼-inch	27 off
2½ and 2¾-inch	35 off
3-inch	41 off
3¼ and 3½-inch	43 off
4-inch	46 off
4½, 5 and 6-inch	41 off

SEAMLESS HOT ROLLED

2 and 2½-inch	30 off
2½ and 2¾-inch	38 off
3-inch	44 off
3¼ and 3½-inch	46 off
4-inch	49 off
4½, 5 and 6-inch	44 off

(Note—Additional discounts of 2 or 3 extra 5 per cents now being given.)

SEAMLESS STEEL MERCHANT BOILER TUBES

Extras:

Add $8 per ton for more than four gages heavier than standard and add 10 per cent to theoretical weight.

Add 5 per cent for lengths over 24 feet and not over 26 feet.

Smaller tubes than 1-inch and lighter than standard gage to be sold at mechanical tubing list and discount.

Intermediate sizes and gages not listed above take price of next larger outside diameter and heavier gage.

SEAMLESS STEEL MECHANICAL TUBING

Base Discounts on New List July 1, 1925

Carbon 0.10 to 0.20 per cent.....50 to 55 off

Carbon 0.30 to 0.40 per cent.....45 to 50 off

SEAMLESS STEEL LOCOMOTIVE AND SUPERHEATER TUBES

Net prices per foot f.o.b. Pittsburgh

Outside diameter	Gage	Price
2-inch	12-gage	14¼c
2-inch	11-gage	15c
2-inch	10-gage	16c
2¼-inch	12-gage	16c
2¼-inch	11-gage	17c
2¼-inch	10-gage	18c
3-inch	7-gage	33c
5⅜-inch	9-gage	50c
5½-inch	9-gage	52c

Plus usual extras for forming and for long lengths over 18 feet and for commercially exact lengths.

Plate Extras

BASE

Rectangular plates, tank steel or conforming to manufacturers' Standard Specifications for structural steel, dated Nov. 24, 1922, or equivalent, ¼-inch thick and over on thinnest edge, (except for ¼-inch or 72 inches wide when ordered to weight in pounds per square foot—see width and gage extras), 100 inches wide and under, down to but not including 6 inches wide, 5 feet 0 inches long up to published limit in length but not over 80 feet 0 inch, are base. Extras per pound for width or diameter.

All Plates, Rectangular or Otherwise

¼-inch thick and heavier, but not less than 11 pounds per square foot, if ordered to weigh—

Over 100 inches to and including 110 inches	.05c
Over 110 inches to and including 115 inches	.10c
Over 115 inches to and including 120 inches	.15c
Over 120 inches to and including 125 inches	.25c
Over 125 inches to and including 128 inches	.50c
Plates less than ¼-inch or lighter than 11 pounds per square foot.	
Over 72 inches to and including 84 inches	.10c
Over 84 inches to and including 96 inches	.20c
Over 96 inches to and including 100 inches	.30c

Over 100 inches add .35c to width extras for plates ¼-inch thick and heavier.

GAGE

Plates not Exceeding 72 inches Wide

Plates less than ¼-inch gage, to and including ⅜-inch; or lighter than 10.2 pounds per square foot to and including 7.65 pounds per square foot..... .20c

Plates over 72 Inches Wide

Plates less than ¼-inch gage, to and including ⅜-inch; or lighter than 11 pounds per square foot, to but not including 7.65 pounds per square foot ..... .20c

Plates ordered 7.65 pounds per square foot ..... .30c

QUALITIES

Pressing steel	.10c
Flange steel (boiler grade)	.15c
Ordinary firebox steel	20c
Stillbottom steel	.30c
Locomotive firebox steel	.50c
Marine steel	1.50c
Hull material subject to U. S. Navy Dept. Specifications for Medium or Soft Steel	.10c
High tensile hull steel subject to U. S. Navy Dept. or equivalent specifications	1.00c
Boiler steel subject to U. S. Navy Dept. Specifications, classes A and B	1.50c

Hull plates to hull specifications, required to stand cold flanging, take extra for flange steel.

Floor Plates

Checkered plates 1.75c

Checkered plates are not furnished to sketch and are rolled from "Stock Steel" only. No physical tests will be made on checkered plates.

INSPECTION

Mill inspection .....No extra

Charges for other inspection, such as Lloyd's or American bureau of shipping, will be made by inspection bureau direct to buyer.

CUTTING

LENGTH OR DIAMETER

All Plates, Rectangular or Otherwise

Five feet and over up to published limit of length, but not over 80 feet....No extras

Under 5 feet to 3 feet inclusive	.10c
Under 3 feet to 2 feet inclusive	.25c
Under 2 feet to 1 foot inclusive	.50c
Under 1 foot	1.55c
Over 80 feet to 100 feet inclusive	.10c

Over 100 feet add .25c plus .05c for every additional 2 feet or fraction thereof.

Regular Sketches

With not more than four straight cuts. (Including straight taper plates)

Additional extra ..... .10c

Irregular Sketches

With not more than four straight cuts. (Sketches cannot be sheared wiht re-entrant angles)

Additional extra ..... .20c

SIVYER CASTINGS

DEPENDABLE

Sivyer Castings can be forged and welded

A brake beam hanger for arch bar freight car trucks — cast in Sivyer Electric Steel.

Greater Strength — Greater Safety—Lighter Weight—Easier Assembling

Formerly, one large, heavy, malleable casting, with two arms fitting over each side of the truck bolster, was necessary. This casting weighed 32 pounds. It was exceptionally hard to fit into the assembly—it necessitated the scrapping of the entire piece to replace one arm—it incurred the constant danger of breakage and consequently the derailment of the car. In Sivyer Steel, two small 12 pound castings, with but 3/8 inch sections, carry the brake beam. Assembling is greatly simplified. Either hanger can be replaced without replacing the other. And breakage in service, and the consequent danger of derailment, is virtually eliminated.

WHY CASTING USERS TURN TO SIVYER

This brake beam hanger for arch bar freight car trucks is but one of many parts that have been redeveloped by Sivyer to provide:

greater strength and safety—
lighter weight—
easier and faster assembling.

Castings users are finding that Sivyer methods and Sivyer Steels can often solve the problems of casting breakage, design, machining costs, and excess weight. If you will send blue prints of the part giving trouble, we will make recommendations without obligating you in any way.

SIVYER STEEL

SIVYER STEEL CASTING COMPANY, MILWAUKEE

"Where-To-Buy"

A classified-by-products list of advertisers for the convenience of readers. If you don't find what you want, write us and we will tell you where to get it. ¶Index to advertisements will give you page number of any advertisers and by referring to advertisement you can get full particulars about products.

ACCUMULATORS
Birdsboro Steel Foundry & Machine Co., Birdsboro, Pa.
Logemann Brothers Co., 3126 Burleigh St., Milwaukee, Wis.
Pennsylvania Engineering Works, New Castle, Pa.
United Engineering & Foundry Co., Farmers Bank Bldg., Pittsburgh, Pa.
Wood, R. D., & Co., 400 Chestnut St., Philadelphia, Pa.

ACETYLENE (Dissolved)
International Oxygen Co., Newark, N. J.
Prest-O-Lite Co., The, 30 E. 42nd St., New York City.

ACETYLENE GENERATORS
Oxweld Acetylene Co., 30 E. 42nd St., New York City.

ACETYLENE IN CYLINDERS
Internaitonal Oxygen Co., Newark, N. J.
Prest-O-Lite Co., The, 30 E. 42nd St., New York City.

ACIDS (Pickling)
American Chemical Paint Co., Ambler, Pa.

ADAMITE ROLLS
American Adamite Co., The, 12th & Etna Sts., Pittsburgh, Pa.

AIR COMPRESSORS—See COMPRESSORS (Air)

ALLOYS
Electro Metallurgical Sales Corp., 30 E. 42nd St., New York City.
Lavino, E. J., & Co., Bullitt Bldg., Philadelphia, Pa.
Metal & Thermit Corp., 120 Broadway, New York City.
Titanium Alloy Mfg. Co., Niagara Falls, N. Y.
Vanadium Corp. of America, 120 Broadway, New York City.

ALUMINUM
Leavitt, C. W., & Co., 30 Church St., New York City.
Rogers, Brown & Crocker Bros., Inc., 21 E. 40th St., New York City.

ALUMINUM (Vanadium)
Vanadium Corp., of America, 120 Broadway, New York City.

ALUMINUM TUBING
Summerill Tubing Co., Bridgeport, Pa.

ANGLES, TEES, CHANNELS—See STEEL (Structural)

ANNEALING BOXES
Adamson Machine Co., The, Akron, Ohio.
Farrell-Cheek Steel Foundry Co., Sandusky, O.
Pittsburgh Malleable Iron Co., 34th & Smallman Sts., Pittsburgh, Pa.
Riter-Conley Co., Oliver Bldg., Pittsburgh, Pa.
Smith, George H., Steel Casting Co., Milwaukee, Wis.
Union Steel Casting Co., 62nd and Butler Sts., Pittsburgh, Pa.
United Engineering & Foundry Co., Farmers Bank Bldg., Pittsburgh, Pa.
Zanesville Malleable Co., Zanesville, O.

ANTIGLARE PREPARATION
Skybryte Co., The, Keith Bldg., Cleveland, O.

APPRAISALS
McKee, Arthur G., & Co., 2422 Euclid Ave., Cleveland, O.

AXLES
Bethlehem Steel Co., Bethlehem, Pa.
Carnegie Steel Co., 431 Carnegie Bldg., Pittsburgh, Pa.
Champion Machine & Forging Co., The, 3675 E. 78th St., Cleveland, O.
Illinois Steel Co., 208 So. LaSalle St., Chicago, Ill.
National Tube Co., Frick Bldg., Pittsburgh, Pa.
Transue & Williams Steel Forging Corp., Alliance, O.

BALING PRESSES
Cox & Sons Co., The, Bridgeport, N. J.
Logemann Brothers Co., 3126 Burleigh St., Milwaukee, Wis.

BAND SAWS (Metal Cutting)
Huther Bros. Saw Mfg. Co., 1190 University Ave., Rochester, N. Y.

BANDS AND HOOPS (Galvanized Strips)
Sharon Steel Hoop Co., Sharon, Pa.

BANDS (Iron)
Bethlehem Steel Co., Bethlehem, Pa.

BANDS (Welded Iron and Steel)
Akron-Selle Co., Akron, O.

BAR BENDERS
Kardong Bros., 346 Buchanan St., Minneapolis, Minn.

BARGES (Steel)
American Bridge Co., 71 Broadway, New York City.

BARRELS (Steel)
Cleveland Wire Spring Co., The, 1281 E. 38th St., Cleveland, O.

BARS (Alloy)
Central Alloy Steel Corp., Massillon, O.
Donner Steel Co., Inc., P. O. Box 1000, Buffalo, N. Y.
Wheelock, Lovejoy & Co., Inc., 128 Sidney St., Cambridge, Mass.

BARS (Concrete Reinforcements)
Bethlehem Steel Co., Bethlehem, Pa.
Donner Steel Co., Inc., P. O. Box 1000, Buffalo, N. Y.
Franklin Steel Works, Franklin, Pa.
Gulf States Steel Co., Brown-Marx Bldg., Birmingham, Ala.
Laclede Steel Co., Arcade Bldg., St. Louis, Mo.
Ryerson, Jos. T., & Son, Inc., 16th and Rockwell Sts., Chicago, Ill.
Truscon Steel Co., Youngstown, O.

BARS (Iron and Steel)
Bethlehem Steel Co., Bethlehem, Pa.
Lockhart Iron & Steel Co., Pittsburgh, Pa.
Morris, Wheeler & Co., 30th and Locust Sts., Philadelphia, Pa.
Penn Iron & Steel Co., Creighton, Pa.
Republic Iron & Steel Co., Youngstown, O.
Truscon Steel Co., Youngstown, O.

BARS (Steel)
Bethlehem Steel Co., Bethlehem, Pa.
Bliss & Laughlin, Inc., Harvey, Ill.
Carnegie Steel Co., 431 Carnegie Bldg., Pittsburgh, Pa.
Central Alloy Steel Corp., Massillon, O.
Donner Steel Co., Inc., P. O. Box 1000, Buffalo, N. Y.
Franklin Steel Works, Franklin, Pa.
Illinois Steel Co., 208 S. LaSalle St., Chicago, Ill.
Illinois Steel Warehouse Co., 1319 Wabansia Ave., Chicago, Ill.
Inland Steel Co., First National Bank Bldg., Chicago, Ill.
Jones & Laughlin Steel Corp., Pittsburgh, Pa.
Pacific Coast Steel Co., Rialto Bldg., San Francisco, Calif.
Ryerson, Jos. T., & Son, Inc., 16th and Rockwell Sts., Chicago, Ill.
Tennessee Coal, Iron & Railroad Co., 1351 Brown-Marx Bldg., Birmingham, Ala.
Youngstown Sheet & Tube Co., Youngstown, O.

BARS, STEEL (Electric Furnace)
Timken Roller Bearing Co., The, Canton, O.

BEAMS, CHANNELS, ANGLES, ETC.
Bethlehem Steel Co., Bethlehem, Pa.
Blystone Mfg. Co., Ironton St. Cambridge Springs, Pa.
Carnegie Steel Co., 431 Carnegie Bldg., Pittsburgh, Pa.
Illinois Steel Co., 208 So. LaSalle St., Chicago, Ill.
Inland Steel Co., First National Bank Bldg., Chicago, Ill.
Jones & Laughlin Steel Corp., Pittsburgh, Pa.
Phoenix Iron Co., The, 20 So. 15th St., Philadelphia, Pa.
Ryerson, Jos. T., & Son, Inc., 16th and Rockwell Sts., Chicago, Ill.

BEARINGS (Ball)
Hoover Steel Ball Co., Ann Arbor, Mich.
New Departure Mfg. Co., The, Bristol, Conn.
Norma-Hoffmann Bearings Corp., Stamford, Conn.

BEARINGS (Journal)
Hyatt Roller Bearing Co., Newark, N. J.
Keystone Bronze Co., 39th St., Pittsburgh, Pa.

BEARINGS (Motor)
Hoover Steel Ball Co., Ann Arbor, Mich.
Hyatt Roller Bearing Co., Newark, N. J.
Norma-Hoffman Bearings Corp., Stamford, Conn.

BEARINGS (Roller)
Hoover Steel Ball Co., Ann Arbor, Mich.
Hyatt Roller Bearing Co., Newark, N. J.
Norma-Hoffman Bearings Corp., Stamford, Conn.
Timken Roller Bearings Co., The, Canton, O.

BEARINGS (Thrust)
Hoover Steel Ball Co., Ann Arbor, Mich.
Norma-Hoffman Bearings Corp., Stamford ,Conn.
Timken Roller Bearing Co., The, Canton, O.

BELT CEMENT AND DRESSING (Leather)
Williams, I. B., & Sons, Dover, N. H.

BELT LACING (Leather)
Chicago Rawhide Mfg. Co., 1305 Elston Ave., Chicago, Ill.
Williams, I. B., & Sons, Dover, N. H.

BELTING (Chain)
Link-Belt Co., 910 S. Michigan Ave., Chicago, Ill.

BELTING (Leather)
Chicago Rawhide Mfg. Co., 1305 Elston Ave., Chicago, Ill.
Williams, I. B., & Sons, Dover, N. H.

BENCHES AND FRAMES (Drawing)
Morgan Construction Co., Worcester, Mass.
Vaughn Machinery Co., The, Cuyahoga Falls, O.

BENDING AND STRAIGHTENING MACHINES
Cleveland Punch & Shear Works Co., 3917 St. Clair Ave., Cleveland, O.
Hinman, D. A., & Co., Sandwich, Ill.
Kane & Roach, Niagara and Shonnard Sts., Syracuse, N. Y.
Kardong Bros., 346 Buchanan St., Minneapolis, Minn.
Logemann Brothers Co., 3126 Burleigh St., Milwaukee, Wis.
Long & Allstatter Co., Hamilton, O.
Sutton-Abramsen Engineering Co., Park Bldg., Pittsburgh, Pa.

BENZOL AND TOLUOL RECOVERY PLANTS
Koppers Co., The, Union Trust Bldg., Pittsburgh, Pa.

BILLETS (Forging)
Bethlehem Steel Co., Bethlehem, Pa.
Midvale Co., The, Nicetown, Philadelphia, Pa.

BILLETS (Forging, Alloy Steel)
Bethlehem Steel Co., Bethlehem, Pa.

BILLETS AND BLOOMS
American Rolling Mill Co., Middletown, O.
American Tube & Stamping Plant, The, Stanley Works, The, Bridgeport, Conn.
Andrews Steel Co., Newport, Ky.
Bethlehem Steel Co., Bethlehem, Pa.
Central Alloy Steel Corp., Massillon, O.
Donner Steel Co., Inc., P. O. Box 1000, Buffalo, N. Y.
Illinois Steel Co., 208 South La Salle St., Chicago, Ill.
Inland Steel Co., First National Bank Bldg., Chicago, Ill.
Interstate Iron & Steel Co., 104 S. Michigan Ave., Chicago, Ill.
Wheeling Steel Corp., Wheeling, W. Va.
Wood, Alan, Iron & Steel Co., Widener Bldg., Philadelphia, Pa.

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